Monthly Oversight Report 24
ACS NPL Site
Griffith, Indiana
November 30, 2002 - December 27, 2002

BLACK & VEATCH

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Black & Veatch Special Projects Corp.

USEPA/RAC VII
American Chemical Services RAO (057-ROBF-05J7)

BVSPC Project 46526
BVSPC File C.3
January 7, 2003

Mr. Kevin Adler
U.S. Environmental Protection Agency
77 W. Jackson Boulevard (SR-6J)
Chicago, Illinois 60604-3590

Subject: Monthly Oversight Summary Report
No. 24 for December 2002

Dear Mr. Adler:

Enclosed is the Monthly Oversight Summary Report No. 24 for December 2002 for the American Chemical Services Superfund Site in Griffith, Indiana.

If you have any questions, please call (312-683-7856) or email (campbelllm@bv.com).

Sincerely,

BLACK & VEATCH Special Projects Corp.

Larry M. Campbell

Larry M. Campbell, P.E.
Site Manager

Enclosure

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Monthly Oversight Summary Report No. 24
ACS Superfund Site WA57, 46526.238

Reporting Period: Month of December (November 30, 2002 - December 27, 2002)
BVSPC O/S Dates: December 3, 5, 10, 12, 17, 19 and 23, 2002

Personnel Summary Affiliation	No. of Personnel	Responsibility
Montgomery Watson Harza	7	Respondent's General Contractor
Black & Veatch Special Projects Corp.	1	USEPA Oversight Contractor
Independent Environmental Services	5	ONCA SBPA ISVE Yard Piping Contractor
Austgen	2	Electrical Contractor
Ryan Construction	2	General Contractor
Midwest Environmental, Inc.	3	ONCA SBPA Cover Contractor
Great Lakes Soil & Environmental Testing	1	ONCA SBPA Interim Cover Geotechnical Testing
Ozinga	1	Roll-off Transporter
Mid-America Drilling	1	Drilling Contractor
Autumn Industries	1	Carbon Supplier

Construction Activities

Major Activities:

- Independent Environmental Services continued installing the saddles on the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system wells.
- Independent Environmental Services backfilled around the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system dual phase extraction wells.
- Ryan Construction installed the rebar and poured the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system blower shed slab.
- Midwest Environmental, Inc. buried drill cuttings and native material underneath the On-Site Containment Area Still Bottoms Pond Area interim cover.
- Great Lakes Soil & Environmental Testing tested the compaction and moisture of the clay cover under which the drill cuttings were buried.

- Independent Environmental Services covered the majority of the On-Site Containment Area Still Bottoms Pond Area interim cover with geotextile fabric.
- Montgomery Watson Harza measured the quarterly groundwater levels and conducted Tasks 1 and 2 of the *Work Plan for the Phase 3 Investigation, ORC Pilot Study.*
- Ryan Construction performed maintenance activities on the groundwater treatment plant and the Off-Site Containment Area in-situ soil vapor extraction system thermal oxidizer and scrubber.
- Austgen reprogrammed permissives on the Off-Site Containment Area in-situ soil vapor extraction system scrubber.
- Montgomery Watson Harza replaced the granular activated carbon in the groundwater treatment plant.
- Montgomery Watson Harza held weekly construction coordination meetings on December 2, 6, 12, and 19, 2002. Montgomery Watson Harza canceled the weekly construction coordination meeting scheduled for December 26, 2002, because of the Christmas holiday.

Activities Performed:

Independent Environmental Services (IES) completed tapping into the On-Site Containment Area (ONCA) Still Bottoms Pond Area (SBPA) in-situ soil vapor extraction (ISVE) system dual phase extraction (DPE) wells. IES successfully pressure tested the groundwater conveyance piping on December 10, 2002, by holding 95 psi for 15 minutes. IES personnel continued to wear tyvek and half-face respirators while performing work within the excavations at the DPE wells. IES also performed continuous air monitoring with a photoionization detector (PID) at and around the excavations. Montgomery Watson Harza (MWH) reported that IES performed daily air monitoring around the tarped roll-offs that contain drill cuttings from the ONCA SBPA ISVE well installation.

IES backfilled around the DPE wells. IES placed a Sonotube around the well and connection to the groundwater conveyance piping. IES filled around the well inside the Sonotube with bentonite grout. IES backfilled around the Sonotube with the native material. The material was placed in 12-inch-thick lifts and compacted between each lift with a jumping jack compactor. Austgen assisted IES in backfilling activities.

Black & Veatch Special Projects Corp. (BVSPC) requested to see the health and safety documentation for several IES employees that was not included in IES' Health and Safety Plan on December 5, 2002. MWH was able to provide most of the documentation; however, MWH had misplaced a few certifications. MWH requested the information from IES and had it available at the site on December 6, 2002.

MWH reported that IES backed its equipment into ONCA SBPA ISVE system vapor extraction well SVE-71 on December 12, 2002. MWH reported that the well had not been damaged.

BVSPC observed that IES was not establishing exclusion zones around each of the wells during tapping activities as required by the IES Heath and Safety Plan. MWH reported that the perimeter work zone fence delineated the exclusion zone for the work in the ONCA SBPA. MWH also reported that IES would not be able to perform its work activities near each well with the equipment if separate independent

exclusion zones were established. BVSPC then observed that the southern perimeter fence was not in place. MWH repaired the fence line. BVSPC also observed that back-up alarms were not functioning on one piece of IES' equipment and on MWH's bobcat. MWH reported that IES would repair its alarm and that MWH's bobcat would not be used on-site until an alarm is installed.

Ryan Construction installed the plastic vapor barrier and rebar for the ONCA SBPA ISVE system blower shed slab on December 12, 2002. Ryan Construction poured the concrete for the ONCA SBPA blower shed slab on Monday, December 16, 2002, and removed the forms on December 19, 2002. Ryan Construction placed blankets over the curing concrete to prevent the concrete from freezing.

BVSPC observed Midwest Environmental, Inc. (MEI) bury the ONCA SBPA ISVE system drill cuttings underneath the ONCA SBPA interim cover on Tuesday, December 17, 2002. MEI removed the clay from a 40-foot by 90-foot area on the western portion of the ONCA SBPA west of the ISVE well field. MEI placed the waste materials generated during the drilling activities in the excavation. MEI also placed the additional native material generated by IES from the DPE well connections. MEI spread the cuttings and native material in the excavation and compacted using a smooth-drum vibratory roller. MEI estimated that approximately 45 cubic yards of material was placed underneath the cap in a 4-inch-thick lift. MEI and IES removed some of the plastic from the material to be buried and placed the plastic in MWH's hazardous waste roll-off box for future disposal. MEI replaced the clay in two 6-inch-thick lifts and compacted each lift with a smooth-drum vibratory roller. Great Lakes Soil & Environmental Testing conducted the compaction and moisture testing of the clay in two locations per lift. MWH's requirements were 95% compaction and -1% to +2% of the optimum moisture content. MEI met MWH's requirements in the first lift; however, in the second lift, the moisture was +2.2% and +2.3% of optimum moisture content. MWH reported that it had started to rain and that the clay would not have been able to dry out and that it believed that the additional moisture would not be detrimental.

IES placed geotextile fabric over the majority of the ONCA SBPA interim cover. Austgen and MEI proof-rolled the ONCA SBPA interim cover prior to IES placing the geotextile. IES began fusion welding the HDPE yard piping and placing the yard piping on the geotextile. IES is scheduled to begin installing saddles on the remainder of the ONCA SBPA ISVE wells in January 2003. IES will also pressure test the piping from the ONCA SBPA blower shed through the length of the piping next week. IES was unable to continue with yard piping installation and geotextile placement because of inclement weather at the site.

BVSPC observed MWH collect groundwater samples from three South Area ORC Pilot Study locations, MW06, ORCPZ102, and ORCPZ103, in accordance with the *Work Plan for Phase 3 Investigation, ORC Pilot Study* on December 5, 2002. MWH also measured the groundwater levels for the fourth quarter. MWH conducted groundwater sampling for Task 2 of the *Work Plan for Phase 3 Investigation, ORC Pilot Study* on December 19 and 20, 2002. Mid-America Drilling advanced the probes for the groundwater sampling. BVSPC observed MWH collect groundwater samples using direct push technology at six locations east of Colfax Ave. on December 19, 2002. MWH collected samples from the seventh location east of Colfax Ave., southeast of the barrier wall, on Friday, December 20, 2002. MWH collected samples at the interval of 23 feet to 26 feet below ground surface at each well. At the seventh

location, MWH reported that it also collected a second sample at the base of the aquifer near the clay layer.

MWH reported that it had reviewed the survey data for the ONCA SBPA interim cover and found two areas that did not receive the design thickness of clay. MWH reported that it had augered these areas and verfied the survey data. The two areas contain approximately 11 inches of clay and are located near the ACS breakroom building and the southeast portion of the cover. MWH reported that it performed calculations with the permeability of the clay sampled as part of the Off-Site Containment Area (OFCA) interim cover and found that it would meet the performance criteria based on these samples. During the December 19, 2002, weekly construction coordination meeting, MWH reported that it received the geotechnical analysis results for Hard Hat Services, Inc.'s (HHSI) clay sample from the ONCA SBPA interim cover construction. MWH reported that the permeability of HHSI's sample is less than the samples from the OFCA interim clay cover, even though the clay for both interim covers was from the same borrow source. HHSI's sample does not meet the design requirements of the cover; however, MWH reported that when HHSI's sample's permeability is averaged with the OFCA sample results, the clay would meet the performance requirements of the design in the areas where the design thickness was not met.

MWH reported that the groundwater treatment plant (GWTP) and the OFCA ISVE system shut down on December 7, 2002, because of a loss of influent pressure. MWH restarted the GWTP on December 9, 2002; however, the system shut down on December 10, 2002, again because of a loss of influent pressure. MWH reported that ACS had damaged one of its influent pipes. ACS repaired the pipe and MWH resumed operating the GWTP on December 11, 2002. On December 12, 2002, the catalytic oxidizer went down because of a high pressure differential across the catalyst. Ryan Construction and MWH removed the catalyst and flushed out any material that may have been fouling the catalyst. MWH and Ryan Construction replaced the catalyst and resumed operating the GWTP on December 12, 2002. MWH reported that it collected a compliance sample from the GWTP catalytic oxidizer on December 18, 2002, to ensure that the catalyst is operating properly after the repairs. MWH began operating the GWTP in recirculation mode on Thursday, December 19, 2002, after it changed the granular activated carbon. MWH reported that resumed discharging from the GWTP on December 23, 2002.

Ryan Construction installed piping and additional strainers on the OFCA ISVE system scrubber on December 11, 2002. This allows MWH to bypass one strainer for cleaning while allowing the system to continue to operate. MWH also performed routine maintenance activities on the OFCA ISVE system while the system was down. MWH resumed operating the OFCA ISVE system on December 12, 2002, pulling vapors from the 17 wells that have been on-line since November. MWH reported that the OFCA ISVE system operated until the morning of December 19, 2002, when the scrubber registered an error. Upon investigation of the unit, MWH determined that the scrubber recirculation pump had stopped operating because of a problem with the control system. Austgen modified the permissives for the recirculation pump so that the pump operates continuously unless a low-low signal is received from the scrubber sump. MWH resumed operating the OFCA ISVE system on the afternoon of December 19, 2002, pulling vapors from 17 wells. MWH reported that the OFCA ISVE system operated until the December 21, 2002, when the scrubber shut down. MWH determined that the filters on the scrubber's

recirculation piping were clogged with fines. MWH cleaned out the filters and resumed operating the unit on Monday, December 23, 2002.

MWH reported that an employee from Austgen observed a strange odor coming from the vicinity of ACS on the evening of December 10, 2002. MWH discussed its air monitoring program and air emissions control equipment with Rich Flores, a co-worker of the Austgen employee. In addition, MWH toured the site with Mr. Flores and they observed an odor resulting from the City of Griffith landfill, similar to what the Austgen employee observed. MWH reported that it will consider preparing an ACS Field Update report for the public detailing its monitoring program.

Attached are BVSPC weekly reports No. 92 through 95, correspondence, log book notes, and photographs of the daily activities. BVSPC's crew conducted oversight of the major field activities on December 3, 5, 10, 12, 17, 19, and 23, 2002. BVSPC's crew attended two weekly construction coordination meetings at the site on December 12 and 19, 2002. BVSPC attended the weekly construction meetings held on December 2 and 6, 2002, via conference call. MWH canceled the weekly construction coordination meeting scheduled for December 26, 2002, because of the Christmas holiday.

Topics of Concern:

- MWH reported that there are two thin areas of the ONCA SBPA interim cover where the thickness of the clay is less than the design thickness. Based on HHSI's clay sample for the ONCA SBPA interim cover, the permeability of the clay does not meet the design requirements.
- MWH received a concern over potential odors from the site from an Austgen employee.

Concern Resolution:

- Averaging the permeability of the OFCA clay samples with the ONCA SBPA clay sample may not be appropriate. There may have been changes in the borrow materials or the test may have been performed by different laboratories.
- MWH discussed its air monitoring program and toured the site with a co-worker of the Austgen employee and determined that the potential odor was not likely from the site, but from a neighboring site.

Upcoming Activities:

- Area Survey to resurvey P-36 and MW-10C.
- IES to continue installing the ONCA SBPA ISVE system yard piping and geotextile placement.

Signature: Leigh Peters Date: January 3, 2003

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Weekly Oversight Summary Report No. 92
ACS Superfund Site WA57, 46526.238

Reporting Period: Week of December 2, 2002
BVSPC O/S Dates: December 3 and 5, 2002 (Ms. Peters)

Personnel Summary Affiliation	No. of Personnel	Responsibility
Montgomery Watson Harza	4	Respondent's General Contractor
Black & Veatch Special Projects Corp.	1	USEPA Oversight Contractor
Independent Environmental Services	4	ONCA SBPA ISVE Yard Piping Contractor
Ryan Construction	2	General Contractor
Austgen	1	Electrical Contractor

Construction Activities

Major Activities:

- Independent Environmental Services continued installing the saddles on the wells for the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system piping.
- Montgomery Watson Harza measured groundwater levels and collected groundwater samples at several South Area Oxygen-Release Compound Pilot Study monitoring points.
- Ryan Construction performed maintenance activities on the groundwater treatment plant.
- Austgen completed heat tracing a process line from the aeration tank to the catalytic oxidizer at the groundwater treatment plant.
- Montgomery Watson Harza held weekly construction coordination meetings on December 2 and 6, 2002.

Activities Performed:

Independent Environmental Services (IES) continued to tap into the On-Site Containment Area (ONCA) Still Bottoms Pond Area (SBPA) in-situ soil vapor extraction (ISVE) system dual phase extraction wells. IES personnel continued to wear tyvek and half-face respirators while performing work within the excavations at the wells. IES also performed continuous air monitoring with a photoionization detector (PID) at and around the excavations. Montgomery Watson Harza (MWH) reported that IES conducted daily air monitoring around the tarped roll-offs that contain drill cuttings from the ONCA SBPA ISVE well installation.

IES postponed backfilling the excavations at the dual phase extraction wells until all of the well connections are complete. MWH reported that IES will not backfill in frozen ground, nor will it place frozen material within the excavation. MWH also reported that IES will backfill the native material in 12-inch-thick lifts and compact the material. A Sonotube will be placed around the well and bentonite grout will be placed around the well inside the Sonotube to ensure a good seal around the saddles.

IES reported that it had completed 16 of the dual phase extraction wells as of December 6, 2002. IES began removing the gravel and geotextile in preparation for working on the dual phase extraction wells located within the ONCA SBPA gravel road and parking area. IES reported that it would not complete dual phase extraction well SVE-61, located immediately east of the ONCA SBPA ISVE system blower shed, until Ryan Construction pours the blower shed foundation.

Black & Veatch Special Projects Corp. (BVSPC) requested to see the health and safety documentation for several IES employees that was not included in IES' Health and Safety Plan. MWH was able to provide most of the documentation; however, MWH had misplaced a few certifications. MWH requested the information from IES and had it available at the site on December 6, 2002.

MWH reported that it had reviewed the survey data for the ONCA SBPA interim cover and found two areas that did not receive the design thickness of clay. MWH reported that it had augered these areas and verfied the survey data. The two areas contain approximately 11 inches of clay and are located near the ACS breakroom building and the southeast portion of the cover. MWH reported that it performed calculations with the permeability of the clay sampled as part of the Off-Site Containment Area (OFCA) interim cover and found that it would meet the performance criteria for permeability based on these samples.

BVSPC observed MWH collect groundwater samples from three South Area ORC Pilot Study locations, MW06, ORCPZ102, and ORCPZ103, in accordance with the *Work Plan for Phase 3 Investigation, ORC Pilot Study*. MWH also measured the groundwater levels for the fourth quarter.

MWH reported that the OFCA ISVE system continued to operate well with a total of 17 wells on-line. Ryan Construction performed minor maintenance activities at the groundwater treatment plant (GWTP). Austgen completed heat tracing the piping from the aeration tank to the catalytic oxidizer. MWH reported that the GWTP was operating at 25 gpm. MWH also reported that it inspected all of the barrier wall extraction system (BWES) wells to verify the water levels and that the pumps were operating properly. MWH reported that the flow through the GWTP is limited by the water available from the BWES. MWH reported that it has met its dewaterting goal of lowering the water table to an elevation of 626 feet above mean sea level (amsl) in the OFCA, limiting the water available for the BWES. MWH also reported that it is making progress on lowering the water table in the ONCA SBPA to 629 ft amsl and that it will focus its efforts on maintaining the dewatered level in the OFCA in addition to dewatering the ONCA SBPA.

MWH held the weekly construction coordination meetings on December 2 and 6, 2002. The weekly construction coordination meeting scheduled for November 28, 2002, was postponed to December 2, 2002, because of the Thanksgiving holiday.

Topics of Concern:

- MWH reported that there are two thin areas of the ONCA SBPA interim cover where the thickness of the clay is less than the design thickness.

Concern Resolution:

- MWH reported that the thin areas would meet the performance requirements of the interim cover based on the permeability of the OFCA interim cover clay samples.

Upcoming Activities:

- Area Survey to resurvey P-36 and MW-10C.
- IES to continue installing the ONCA SBPA ISVE system yard piping.
- MEI to bury drill cuttings under the ONCA clay cover.
- Ryan Construction to pour the ONCA SBPA ISVE system blower shed slab.

Signature: Leigh Peters Date: December 9, 2002

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WEEKLY CONSTRUCTION MEETING MINUTES FOR DECEMBER 2, 2002 MEETING AMERICAN CHEMICAL SERVICE, NPL SITE GRIFFITH, INDIANA

MEETING DATE: December 2, 2002

MEETING TIME: 10:00 AM

MEETING LOCATION: ACS Site – Site Trailer

ATTENDEES:
Todd Lewis – MWH (via phone)
Jon Pohl – MWH (via phone)
Peter Vagt – MWH
Rob Adams – MWH
Lee Orosz – MWH
Chris Daly – MWH (via phone)
Chad Smith – MWH (via phone)
Travis Klingforth – MWH
Kevin Adler – U.S. EPA (via phone)
Larry Campbell – BVSPC (via phone)
Leigh Peters - BVSPC (via phone)
Dan Petrich – Independent Environmental Services (IES)

TOPICS:

Health and Safety Summary

No health and safety incidents occurred at the Site since the last weekly meeting on November 21.

Groundwater Treatment Plant (GWTP) Status

The GWTP is currently operating at approximately 25 gallons per minute (gpm). The current flow rate of the system is limited by the extraction potential of the Barrier Wall Extraction System (BWES) because significant dewatering progress has been achieved. The extraction rate is expected to increase once the BWES upgrades in the On-Site Area are completed.

The heat exchanger is working well, as shown by the fact that the water temperature in the activated sludge plant is currently approximately 60 degrees F at night. This is 20 to 25 degrees warmer than normal for this time of year.

Ryan Construction poured a 10-foot by 20-foot reinforced concrete slab on the west side of the GWTP on November 27. This slab will be used for the thermal oxidizer scrubber unit for the On-Site Area ISVE system.

Austgen Electric completed heat tracing of a six-inch diameter stainless steel process line between the catalytic oxidizer and aeration tank during the week of November 25. They will complete insulation around this line during the week of December 2.

In-Situ Vapor Extraction (ISVE) System – Off-Site Area

The Off-Site Area ISVE system, including the thermal oxidizer unit, continues to operate properly. Seventeen SVE wells are currently on-line. On November 25 the thermal oxidizer unit was off for one day to clean the scrubber spray bars.

On-Site Area ISVE System

The vapor and compressed air conveyance pipe installation for the ISVE system is being installed by Independent Environmental Services (IES) at the direction of MWH. IES began work on November 21. They repaired the three-inch perimeter water conveyance line damaged by BLA near SVE-46 on November 22 and successfully pressure tested the line on November 25 at 93 psi for 15 minutes. IES began connecting the existing water and air conveyance piping to each of the dual-phase wells on November 25. As of December 2, five of the 21 dual phase wells had been connected to the water conveyance piping. IES is inerting each well prior to tapping into it and using a PID and O_2/LEL meter to monitor the wells for explosive conditions. No significant amounts of debris have been encountered while connecting the wells.

After each of the wells has been tapped, geotextile fabric will be installed across the area and vapor conveyance piping installed between each well and the future blower shed location. When the piping installation has been completed, gravel will be placed over the entire area as a temporary winter cover.

On November 26 MWH completed placement and installation of the 42 stub-up conveyance pipes that enter the blower shed from the SVE, dual-phase, and air-sparge wells.

Ryan Construction placed the gravel and mud slab for the On-Site blower shed subbase on November 27. They completed compaction and compaction testing of the gravel on December 2. The concrete forms were constructed on December 2. Concrete pouring is not a critical path item at this time. It will be scheduled on a date with reasonably warm temperatures, perhaps during the week of December 9.

The future thermal oxidizer to be installed for the On-Site Area ISVE system will be placed on a new 10 feet by 20 feet reinforced concrete pad to be laid directly west of the current thermal oxidizer pad in the GWTP. The new unit will be a 2,000 scfm induced-draft unit. Delivery to the site is expected by April 2003.

Groundwater Monitoring

MWH is scheduled to conduct groundwater monitoring activities on December 5. Activities will include the regular weekly monitoring of the Off-Site ISVE system wells will be performed and checking water levels in the 42 monitoring points listed in the

PSVP. Also, samples will be collected and analyzed from three groundwater monitoring wells as part of Phase 3 of the ORC® pilot study and investigation.

Design Refinements

The following is a summary of clarifications and modifications that were made to the construction work documents (RFBs, construction drawings, Final Remedial Design Report, etc).

1. The Request for Bid (RFB) for the Still Bottoms Pond Area (SBPA) Interim Cover (MWH, July 2002) had a provision for compacting the road gravel (Indiana #53) to 90% of maximum dry density. A specific Proctor test was not performed on the actual aggregate used. Instead, a typical maximum density as provided by the source quarry was utilized. The quarry personnel indicated that the typical dry maximum density of the Indiana #53 aggregate ranged from 130 to 140 pounds per cubic foot (PCF). A maximum dry density of 135 pcf was utilized for acceptance of the access road. A typical maximum density was used because the road aggregate will not be required to support a structural load (such as a foundation) and because a significant portion of the road will be removed and replaced during installation of the ISVE system yard piping.

2. The construction drawings for installation of the Still Bottoms Pond Area ISVE System Conveyance Piping (MWH, September 2002) include a vapor piping placement plan that differs from the Final Remedial Design Report. The construction drawings show the vapor conveyance piping being placed above the clay layer, in the gravel layer (the Final Remedial Design Report has the pipes being placed in the clay layer). This change was made in an attempt to minimize disturbance of the clay layer during piping installation and any future maintenance/repairs. This placement plan may also increase the integrity of the cover system by minimizing the amount of clay which will be disturbed. The pipes will only convey compressed air and extracted vapors so freezing is not an issue. Because the pipes will be placed closer to the surface, various vehicle loading scenarios were evaluated for the interim cover with gravel only (without blacktop) because this represents the worst case scenario.

   For the general cover area (which excludes the access road and blower shed foundation), loading from a 1-ton service truck was evaluated. This evaluation indicated that SDR-11 pipe will be acceptable if placed in the gravel layer. For the gravel access road, loading from a tanker truck was evaluated. The evaluation indicated that additional gravel or incasing the pipes in concrete would be required. The concrete option was selected and designed for a one-year service life. A one-year service life was selected to correspond to the schedule for installing the blacktop component of the final cover. SDR-11 piping will also be acceptable for use in the access road after the blacktop is placed irregardless of the condition of the concrete encasement.

3. The construction drawings for installation of the Still Bottoms Pond Area ISVE System Conveyance Piping (MWH, September 2002) include a requirement for compacting the general cover gravel (excluding the access road and blower shed foundation). This compaction will not be performed until the surface is prepared for the blacktop component of the final cover.

4. The depth change of the three-inch diameter vapor conveyance piping lines at each ISVE well will be accomplished using two 45-degree elbow fittings. This detail is included in the construction drawings for installation of the Still Bottoms Pond Area ISVE System Conveyance Piping (MWH, September 2002). The details are shown on Details 1/C-2 and 2/C-2 on Sheet C-3 and Detail 3/C-2 on Sheet C-3. The 45-degree elbows are being used instead of bending the pipe to minimize the length required to make the depth change, and subsequently, minimize the amount of clay cover disturbed. The purpose of the depth change is to raise the piping from the bottom of the clay layer to the bottom of the gravel layer.

5. The Final Remedial Design Report includes a thermal oxidizer/scrubber for the SBPA ISVE system with a capacity of 1,000 cubic feet per minute (CFM). The actual thermal oxidizer/scrubber will be sized for a 2,000 CFM capacity. The larger unit will allow for capacity redundancy and may result in decreased operating costs since vapors from two sources (both ISVE systems or one ISVE system and the GWTP's off-gasses) can be treated by this unit. The larger unit also can also be used to treat increased vapor streams if one of the ISVE systems needs to be expanded.

6. The RFP for the thermal oxidizer/scrubber for the SPBA ISVE system (MWH, July 2002) included a list recommended materials of construction. Based on additional research by MWH and discussions with the selected vendor, the following materials have been changed from the RFB:

   - The thermal oxidizer insulation has been changed from a castable refractory to ceramic fiber insulation. The ceramic fiber insulation will not crack; as is a potential for the castable material. Also the ceramic fiber insulation will allow for future installation of a catalyst with less modification than the castable refractory will allow.

   - The shell of the thermal oxidizer has been changed from Hastelloy to coated carbon steel. The coating will be compatible with the influent contaminants and combustion temperatures and will protect the carbon steel shell from contaminant and moisture corrosion. This change will present acceptable corrosion protection at a significant cost savings to the Hastelloy.

   - The scrubber tower material has been changed from Hastelloy to fiberglass reinforced plastic (FRP). The FRP provides comparable corrosion/degradation resistance to the Hastelloy at a significant cost

savings. Because the FRP has a lower melting temperature than the Hastelloy, an emergency quench nozzle has been added to the top of the scrubber tower to provide additional cooling capacity during high-heat emergencies.

- Based on operation of the existing thermal oxidizer/scrubber, the packing material has been changed from stainless steel to CPVC. The CPVC will provide better corrosion resistance than the stainless steel in the packing's application. Because the CPVC has a lower melting temperature than the stainless steel, an emergency quench nozzle has been added to the top of the scrubber tower to provide additional cooling capacity during high-heat emergencies.

7. The RFP for the thermal oxidizer/scrubber for the SPBA ISVE system (MWH, July 2002) specifies a forced-draft system. Instead, an induced draft system has been ordered. The induced-draft system will create a small vacuum throughout the thermal oxidizer, scrubber, and piping because the air is pulled through the system by a fan after treatment. For comparison, a forced-draft system would push air through the system by a fan located at the influent end of the thermal oxidizer and create a positive pressure in the system, so that any leakage would be outward from the unit. An induced-draft system will require more space. However, it was selected because of the vacuum it applies to the system. This vacuum will pull ambient air into the system if a leak occurs instead of releasing potentially contaminated process air to the atmosphere.

Looking Ahead

Week of December 9, 2002	• GWTP/ISVE operation • IES continues to install vapor conveyance piping • Concrete pour for Blower Shed (weather permitting)
Week of December 16, 2002	• GWTP/ISVE operation • Continue to install vapor conveyance piping
Health and Safety Items to Monitor	On-Site ISVE Vapor Piping Installation • Inerting wells • Air monitoring for intrusive work • Welding pipe • Slips, trips, falls (especially in ice/snow) • Temperature/hypothermia • Safe winter driving • Use of caution tape/barricades around excavations (especially abandoned well locations) • Ladder safety • Securing Nitrogen tank during use GWTP • Confirm proper operation of heat tracing system to prevent frozen pipes

Next Weekly Construction Meetings

- Friday, December 6, 2002

TMK/RAA/pjv/TAL
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WEEKLY CONSTRUCTION MEETING MINUTES FOR DECEMBER 6, 2002 MEETING AMERICAN CHEMICAL SERVICE, NPL SITE GRIFFITH, INDIANA

MEETING DATE: December 6, 2002

MEETING TIME: 10:00 AM

MEETING LOCATION: ACS Site – Site Trailer

ATTENDEES:
Todd Lewis – MWH (via phone)
Jon Pohl – MWH (via phone)
Peter Vagt – MWH (via phone)
Rob Adams – MWH
Lee Orosz – MWH
Chris Daly – MWH (via phone)
Chad Smith – MWH (via phone)
Travis Klingforth – MWH
Kevin Adler – U.S. EPA (via phone)
Larry Campbell – BVSPC (via phone)
Leigh Peters - BVSPC (via phone)
Mark Travers – Environ (via phone)
Dan Petrich – Independent Environmental Services (IES)

TOPICS:

Health and Safety Summary

No health and safety incidents occurred at the Site since the last weekly meeting on December 2. MWH and Independent Environmental Services (IES) are working to get copies are all Hazwoper paperwork for the IES crew working on site. Each member of the IES crew on site has taken his 40-hour and is current with the 8-hour Hazwoper annual refresher training.

Groundwater Treatment Plant (GWTP) Status

The GWTP is currently operating at approximately 25 gallons per minute (gpm). The current flow rate of the system is limited by the extraction potential of the Barrier Wall Extraction System (BWES) because significant dewatering progress has been achieved. Dewatering progress graphs will be included in the December 2002 monthly progress report, indicating that the current water levels in the Off-Site Area are very close to the target water level. In addition, steady progress has been made in the On-Site Area where the dewatering capacity will be further increased as soon as the dual phase wells have been constructed and pumps have been placed in them. A future Field Update is being planned to discuss MWH's dewatering progress.

On December 5, MWH manually confirmed the water levels in each of the BWES extraction wells. The water levels were found to be low, as expected due to the dewatering goal nearly being achieved. MWH also confirmed that the pumps were operating properly.

Austgen Electric completed heat tracing the six-inch diameter stainless steel process line between the catalytic oxidizer and aeration tank during the week of November 25. They completed insulation around this line during the week of December 2.

In-Situ Vapor Extraction (ISVE) System – Off-Site Area

The Off-Site Area ISVE system, including the thermal oxidizer unit, continues to operate properly. Seventeen SVE wells are currently on-line.

On-Site Area ISVE System

The vapor and compressed air conveyance pipe installation for the ISVE system is being installed by Independent Environmental Services (IES) at the direction of MWH. As of December 6, 16 of the 21 dual phase wells have been connected to the water conveyance piping. IES anticipates completing these dual phase connections during the week of December 9. Each well will be backfilled and compacted in one-foot lifts when the weather permits.

IES continues to perform air monitoring in and around the wells during the excavation and connection process. IES personnel working in the shallow excavations wear half-face respirators. IES is also daily monitoring the roll-off boxes containing soil cuttings from the well drilling that are staged along the southern fence of the On-Site Area. IES has noted low volatile organic compound (VOC) readings just under the edge of the tarp cover and no readings two or more feet away.

Ryan Construction placed the gravel and mud slab for the On-Site blower shed subbase on November 27. They completed compaction and compaction testing of the gravel on December 2. The concrete forms were constructed on December 2. The concrete will be poured when weather permits, perhaps during the week of December 9.

Groundwater Monitoring

MWH performed groundwater monitoring activities on December 5. The regular weekly monitoring of the Off-Site ISVE system wells was performed. The 42 monitoring points listed in the PSVP were checked for water levels. Also, three wells were sampled and will be analyzed as part of Phase 3 of the ORC® study.

Design Refinements

Two design refinements were discussed. They include the following.

The geotextile material to be placed over the Still Bottoms Pond Area, excluding the access road, as part of the Interim Cover will be a 14-ounce material rather than 16-ounce material as detailed in the Final Remedial Design Report. The 14-ounce material meets the requirements for all properties specified in the Final Remedial Design Report and

previously used by MWH, except for mullen burst. The evaluation for the geotextile fabric in the Final Remedial Design Report includes a mullen burst of 780 pounds per square inch (psi). When compared to the expected load, a mullen burst of 780 psi results in a factor of safety (FS) of 3.15 (See appendix E of the Final Remedial Design Report for calculations). The 14-ounce material has a mullen burst of 740 psi; which results in a FS of 2.49. Because the FS is greater than 2.0, the 14-ounce geotextile is found to be acceptable for this application. This evaluation was previously submitted to the Agencies and Black & Veatch on December 3, 2002.

Survey results from the Still Bottoms Pond Area Interim Cover work have indicated that the clay in two areas is approximately 0.9 feet thick, less than the design thickness of 1.0 feet. The first area is located directly southeast of the ACS Employee Break Building and covers an area approximately 6 feet by 12 feet (based on interpolating the survey locations). The second area is located in the southeast corner of the cover and covers and area approximately 25 feet by 50 feet (based on interpolating the survey locations). The permeability of the in-place clay was evaluated using the hydraulic conductivity of the actual material placed (2.65×10^{-8} cm/s). The clay is from the same source as the clay used in the Off-Site Interim Cover and the hydraulic conductivity data for this material is included in Table 2 of the Off-Site Area Interim Cover Construction Completion Report. The overall permeability of the clay in these areas was evaluated. Using the design parameters of one foot of clay and a hydraulic conductivity of 1.0×10^{-7} cm/s, it will take 9.7 years for water to migrate through the cover. Using the actual values in these areas of 0.9 feet of clay and a hydraulic conductivity of 2.65×10^{-8} cm/s, it will take 32.8 years for water to migrate through the cover. This evaluation indicates that the in-place clay will be more effective at minimizing infiltration than the design requires. Therefore, MWH does not believe that any additional work needs to be done in these areas. MWH has requested that the U.S. EPA and Black and Veatch comment on this plan by December 31 with any questions or comments regarding this change.

Looking Ahead

Week of December 16, 2002	• GWTP/ISVE operation • IES continues to install vapor conveyance piping • Concrete pour for Blower Shed (weather permitting)
Week of December 23, 2002	• GWTP/ISVE operation • Continue to install vapor conveyance piping
Health and Safety Items to Monitor	On-Site ISVE Vapor Piping Installation • Inerting wells • Air monitoring for intrusive work • Welding pipe • Slips, trips, falls (especially in ice/snow) • Temperature/hypothermia • Safe winter driving • Use of caution tape/barricades around excavations (especially abandoned well locations) • Ladder safety • Securing Nitrogen tank during use

Next Weekly Construction Meetings

- Thursday, December 12, 2002

TMK/PJV/RAA
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Weekly Oversight Summary Report No. 93
ACS Superfund Site WA57, 46526.238

Reporting Period: Week of December 9, 2002
BVSPC O/S Dates: December 10 and 12, 2002 (Ms. Peters)

Personnel Summary Affiliation	No. of Personnel	Responsibility
Montgomery Watson Harza	4	Respondent's General Contractor
Black & Veatch Special Projects Corp.	1	USEPA Oversight Contractor
Independent Environmental Services	5	ONCA SBPA ISVE Yard Piping Contractor
Ryan Construction	2	General Contractor
Austgen	1	General Contractor

Construction Activities

Major Activities:

- Independent Environmental Services continued installing the saddles on the wells for the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system piping and began backfilling activities.
- Ryan Construction installed the rebar for the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system blower shed slab.
- Ryan Construction performed maintenance activities on the groundwater treatment plant catalytic oxidizer and the Off-Site Containment Area in-situ soil vapor extraction system scrubber.
- Montgomery Watson Harza and Ryan Construction began trenching through the On-Site Containment Area Still Bottoms Pond Area gravel road for the in-situ soil vapor extraction system piping.
- Montgomery Watson Harza held the weekly construction coordination meeting on December 12, 2002.

Activities Performed:

Independent Environmental Services (IES) completed tapping into the On-Site Containment Area (ONCA) Still Bottoms Pond Area (SBPA) in-situ soil vapor extraction (ISVE) system dual phase extraction (DPE) wells. IES successfully pressure tested the groundwater conveyance piping on December 10, 2002, by holding 95 psi for 15 minutes. IES personnel continued to wear tyvek and half-face respirators while performing work within the excavations at the DPE wells. IES also performed continuous air monitoring

with a photoionization detector (PID) at and around the excavations. Montgomery Watson Harza (MWH) reported that IES performed daily air monitoring around the tarped roll-offs that contain drill cuttings from the ONCA SBPA ISVE well installation.

IES began backfilling around the dual phase extraction wells. IES placed a Sonotube around the well and connection to the groundwater conveyance piping. IES filled around the well inside the Sonotube with bentonite grout. IES backfilled around the Sonotube with the native material. The native material was placed in 12-inch-thick lifts and compacted between each lift with a jumping jack compactor. Austgen assisted IES in backfilling activities.

IES began stockpiling the excess native material excavated from the DPE well installation on the western portion of the ONCA SBPA where it will be placed underneath the interim clay cover by Midwest Environmental, Inc. (MEI) at a later date. IES reported that it will stockpile the clay in one or two central locations. MWH reported that the clay will not be replaced around the wells until all of the piping is in place and the weather permits.

MWH reported that IES backed its equipment into ONCA SBPA ISVE system vapor extraction well SVE-71 on December 12, 2002. MWH reported that the well had not been damaged.

Black & Veatch Special Projects Corp. (BVSPC) observed that IES was not establishing exclusion zones around each of the wells during tapping activities as required by the IES Heath and Safety Plan. MWH reported that the perimeter work zone fence delineated the exclusion zone for the work in the ONCA SBPA. MWH also reported that IES would not be able to perform its work activities near each well with the equipment if separate independent exclusion zones were established. BVSPC then observed that the southern perimeter fence was not in place. MWH repaired the fence line. BVSPC also observed that back-up alarms were not functioning on one piece of IES' equipment and on MWH's bobcat. MWH reported that IES would repair its alarm and that MWH's bobcat would not be used on-site until an alarm is installed.

Ryan Construction installed the plastic vapor barrier and rebar for the ONCA SBPA ISVE system blower shed slab on December 12, 2002. MWH reported that the concrete pour was postponed to December 16, 2002, because of inclement weather forecast. Ryan Construction and MWH began trenching through the ONCA SBPA gravel road for the ISVE yard piping installation. MWH and Ryan Construction will continue to trench through the road next week.

MWH reported that the groundwater treatment plant (GWTP) and the Off-Site Containment Area (OFCA) ISVE system shut down on December 7, 2002, because of a loss of influent pressure. MWH restarted the GWTP on December 9, 2002; however, the system shut down on December 10, 2002, again because of a loss of influent pressure. MWH reported that ACS had damaged one of its influent pipes. ACS repaired the pipe and MWH resumed operating the GWTP on December 11, 2002. On December 12, 2002, the catalytic oxidizer went down because of a high pressure differential across the catalyst. Ryan Construction and MWH removed the catalyst and flushed out any material that may have been fouling the catalyst. MWH and Ryan Construction replaced the catalyst and MWH resumed operating the GWTP on December 12, 2002.

Ryan Construction installed piping and additional strainers on the OFCA ISVE system scrubber on December 11, 2002. This allows MWH to bypass one strainer for cleaning while allowing the system to continue to operate. MWH also performed routine maintenance activities on the OFCA ISVE system while the system was down. MWH resumed operating the OFCA ISVE system on December 12, 2002, pulling vapors from the 17 wells that have been on-line since November.

MWH reported that an employee from Austgen observed a strange odor coming from the vicinity of ACS on the evening of December 10, 2002. MWH discussed its air monitoring program and air emissions control equipment with Rich Flores, a co-worker of the Austgen employee. In addition, MWH toured the site with Mr. Flores and they observed an odor resulting from the Town of Griffith landfill, similar to what the Austgen employee observed. MWH reported that it will consider preparing an ACS Field Update report for the public detailing its monitoring program.

MWH held the weekly construction coordination meeting on December 12, 2002.

Topics of Concern:

- MWH received a concern over potential odors from the site from an Austgen employee.

Concern Resolution:

- MWH discussed its air monitoring program and toured the site with a co-worker of the Austgen employee and determined that the potential odor was not likely from the site, but from a neighboring site.

Upcoming Activities:

- Area Survey to resurvey P-36 and MW-10C.
- IES to continue installing the ONCA SBPA ISVE system yard piping.
- MEI to bury drill cuttings and additional native material under the ONCA clay cover.
- Ryan Construction to pour the ONCA SBPA ISVE system blower shed foundation.

Signature: Leigh Peters Date: December 16, 2002

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WEEKLY CONSTRUCTION MEETING AGENDA
FOR DECEMBER 12, 2002 MEETING
AMERICAN CHEMICAL SERVICE, NPL SITE
GRIFFITH, INDIANA

MEETING DATE: Thursday, December 12, 2002

MEETING TIME: 10:00 am

MEETING LOCATION: ACS Site – Site Trailer

TOPICS:

Health and Safety Summary (Lee)
- Community concerns

GWTP Status (Lee)
- Current flow rate

Off-Site ISVE System (Chris/Todd)
- System operation

SBPA ISVE Yard Piping (Todd/Dan)
- Well tapping completed
- Pressure testing
- Backfilling
- Blower shed construction – concrete pour
- Them ox/scrubber procurement
- Look ahead

Design Refinements (Travis/Rob)

Looking Ahead

Week of...	Task
December 16	• GWTP/ISVE system operation • SPBA ISVE yard piping
December 23	• GWTP/ISVE system operation • SPBA ISVE yard piping
Health and Safety Look Ahead	• SPBA ISVE yard piping

Next Weekly Construction Meeting
- December 19, 2002

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WEEKLY CONSTRUCTION METING
December 12, 2002

Name	Company	Fax Number
ROB ADAMS	MWH	630-836-8959
Leigh Peters	BVSPC	812-346-4751
Travis Klingfors	MWH	
Kevin Adler	EPA - (via phone)	
Jon Pohl	MWH - (")	
Mark Travers	Envirn - (")	
Peter Vajt	MWH	636 836 8959
Lee Ores	MWAC	

WEEKLY CONSTRUCTION MEETING MINUTES FOR DECEMBER 12, 2002 MEETING AMERICAN CHEMICAL SERVICE, NPL SITE GRIFFITH, INDIANA

MEETING DATE: December 12, 2002

MEETING TIME: 10:00 AM

MEETING LOCATION: ACS Site – Site Trailer

ATTENDEES:
Jon Pohl – MWH (via phone)
Peter Vagt – MWH
Rob Adams – MWH
Lee Orosz – MWH
Travis Klingforth – MWH
Kevin Adler – U.S. EPA (via phone)
Leigh Peters - BVSPC (via phone)
Mark Travers – Environ (via phone)

TOPICS:

Health and Safety Summary

No health and safety incidents occurred at the Site since the last weekly meeting on December 6. MWH has copies on file of all applicable Hazwoper paperwork for all crews currently working on site.

There are two vehicles currently on site without backup alarms. One is owned by MWH and the other by IES. MWH and IES are addressing this issue.

On December 11, Rich Flores of Austgen Electric, whose offices are located north of the ACS facility, visited the site to mention that one of his co-workers had noticed an odor coming from the direction of the site. Rich wanted to see if the odor might be the result of any work being conducted at the site. Lee Orosz took Rich to the next-door Griffith landfill where Rich confirmed that the odor had been coming from the compost pile at the landfill rather than from the ACS site. In addition, Lee showed Rich the daily air monitoring logs completed during work on the site.

Groundwater Treatment Plant (GWTP) Status

An ACS facility water line was damaged by ACS, cutting off water to the GWTP on December 10. This caused the system to shutdown. The line was repaired and the system was back in operation by the end of the day.

The catalytic oxidizer system pressure differential alarm system signaled on December 11. The catalyst will be investigated and repaired/replaced as needed.

The routine periodic carbon change-out is scheduled for December 19.

In-Situ Vapor Extraction (ISVE) System – Off-Site Area

The Off-Site Area ISVE system, including the thermal oxidizer unit, continues to operate properly. Seventeen SVE wells are currently on-line.

On-Site Area ISVE System

The vapor and compressed air conveyance pipe installation for the ISVE system is being installed by Independent Environmental Services (IES) at the direction of MWH. IES completed connecting the 21 dual phase wells to the water conveyance piping on December 10. The water conveyance lines were pressure tested successfully at greater than 95 psi for 15 minutes on December 11 after each of the dual phase wells had been connected. Saddle installation on the dual phase wells was completed on December 11. IES began backfilling the subbase in the dual phase wells and compacting in one-foot lifts on December 10.

IES continues to perform air monitoring in and around the wells during the excavation and connection process. IES personnel working in the shallow excavations are in modified level C PPE, wearing half-face respirators. IES is also daily monitoring the roll-off boxes containing soil cuttings from the well drilling that are staged along the southern fence of the On-Site Area.

Ryan Construction began setting up rebar for the On-Site blower shed subbase on December 12. The concrete will be poured when weather permits, perhaps during the week of December 16.

Midwest Environmental, Inc. (MEI) is scheduled to place the excess material excavated during ISVE well installation and conveyance piping installation under the interim clay cover in the On-Site Area. This work is planned before the end of December, weather permitting.

Groundwater Monitoring

MWH is scheduled to perform groundwater sampling via geoprobe on December 19 and 20 as part of Phase 3 of the ORC© pilot study. The samples will be collected near the intersection of Reder Road and Colfax Avenue, just southeast of the ACS Site.

Design Refinements

No design refinements were made during the week that needed to be discussed during the meeting on December 12.

Looking Ahead

Week of December 16, 2002	• GWTP/ISVE operation • IES continues to install vapor conveyance piping • Concrete pour for blower shed (weather permitting)
Week of December 23, 2002	• GWTP/ISVE operation • Continue to install vapor conveyance piping
Health and Safety Items to Monitor	On-Site ISVE Vapor Piping Installation • Inerting wells • Air monitoring for intrusive work • Welding pipe • Slips, trips, falls (especially in ice/snow) • Temperature/hypothermia • Safe winter driving • Use of caution tape/barricades around excavations (especially abandoned well locations) • Backup signals for heavy equipment • Ladder safety • Securing Nitrogen tank during use

Next Weekly Construction Meetings

- Thursday, December 19, 2002
- Also, a meeting among MWH, the U.S. EPA, and Black & Veatch is tentatively scheduled for Thursday afternoon at the Site construction office to further discuss the 2001 Construction Completion Report Comments.

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Weekly Oversight Summary Report No. 94
ACS Superfund Site WA57, 46526.238

Reporting Period: Week of December 16, 2002
BVSPC O/S Dates: December 17 and 19, 2002 (Ms. Peters)

Personnel Summary Affiliation	No. of Personnel	Responsibility
Montgomery Watson Harza	7	Respondent's General Contractor
Black & Veatch Special Projects Corp.	1	USEPA Oversight Contractor
Independent Environmental Services	4	ONCA SBPA ISVE Yard Piping Contractor
Midwest Environmental, Inc.	3	ONCA SBPA Cover Contractor
Great Lakes Soil & Environmental	1	ONCA SBPA Interim Cover Geotechnical Testing
Ozinga	1	Roll-off Transporter
Ryan Construction	2	General Contractor
Austgen	2	General Contractor
Mid-America Drilling	1	Drilling Contractor
Autumn Industries	1	Carbon Supplier

Construction Activities

Major Activities:

- Independent Environmental Services completed backfilling the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system dual phase extraction wells, placed geotextile on the eastern portion of the cover, and began fusion welding the yard piping.
- Austgen proof-rolled the On-Site Containment Area Still Bottoms Pond Area interim cover prior to the geotextile placement.
- Montgomery Watson Harza and Ryan Construction completed trenching through the On-Site Containment Area Still Bottoms Pond Area gravel road in preparation for the in-situ soil vapor extraction system piping.
- Ryan Construction poured the concrete slab for the On-Site Containment Area Still Bottoms Pond Area in-situ soil vapor extraction system blower shed slab.
- Midwest Environmental, Inc. buried drill cuttings underneath the On-Site Containment Area

Still Bottoms Pond Area interim cover.

- Great Lakes Soil & Environmental Testing tested the compaction and moisture of the clay where the drill cuttings were buried.
- Montgomery Watson Harza conducted groundwater sampling using direct push technology for Phase 3 of the ORC South Area Pilot Study.
- Austgen reprogrammed the permissives on the Off-Site Containment Area in-situ soil vapor extraction system scrubber.
- Montgomery Watson Harza replaced the granular activated carbon in the groundwater treatment plant and began running the plant in recirculation mode.
- Montgomery Watson Harza held the weekly construction coordination meeting on December 19, 2002.

Activities Performed:

Independent Environmental Services (IES) completed backfilling around the On-Site Containment Area (ONCA) Still-Bottoms Pond Area (SBPA) in-situ soil vapor extraction (ISVE) system dual extraction wells (DPE). Austgen proof-rolled the ONCA SBPA interim cover on Tuesday, December 17, 2002, prior to IES placing the geotextile over the eastern portion of the interim cover. IES began fusion welding the HDPE yard piping and placing the yard piping on the geotextile. IES is scheduled to begin installing saddles on remainder of the ONCA SBPA ISVE wells next week. IES will also pressure test the piping from the ONCA SBPA blower shed through the length of the piping next week.

Montgomery Watson Harza (MWH) and Ryan Construction completed trenching through the ONCA SBPA gravel road for the ISVE system yard piping. Ryan Construction poured the concrete for the ONCA SBPA blower shed slab on Monday, December 16, 2002, and removed the forms on December 19, 2002. Ryan Construction placed blankets over the concrete while it cured in order to prevent the concrete from freezing.

Black & Veatch Special Projects Corp. (BVSPC) observed Midwest Environmental, Inc. (MEI) bury the ONCA SBPA ISVE system drill cuttings underneath the ONCA SBPA interim cover on Tuesday, December 17, 2002. MEI removed the clay from a 40-foot by 90-foot area on the western portion of the ONCA SBPA west of the ISVE well field. MEI placed the waste materials generated during the drilling activities in the excavation. MEI also placed the additional native material generated by IES from the DPE well connections. MEI spread the cuttings and native material in the excavation and compacted them with a smooth-drum vibratory roller. MEI estimated that approximately 45 cubic yards of material was placed underneath the cap in a 4-inch-thick lift. MEI and IES removed some of the plastic from the material to be buried and placed the plastic in MWH's hazardous waste roll-off box for future disposal. MEI replaced the clay cover in two 6-inch-thick lifts and compacted each lift with a smooth-drum vibratory roller. Great Lakes Soil & Environmental Testing conducted the compaction and moisture testing of the clay in two locations per lift. MWH's requirements were 95% compaction and -1% to +2% of the optimum moisture content. MEI met MWH's requirements in the first lift; however, in the second lift, the moisture was +2.2% and +2.3% of optimum moisture content. MWH reported that it had started to rain and that the clay would not have been able to dry out and that it believed that the additional moisture would not be detrimental.

MWH conducted groundwater sampling for Task 2 of the Phase 3 ORC South Area Pilot Study on December 19 and 20, 2002. Mid-America Drilling advanced the probes for the groundwater sampling. BVSPC observed MWH collect groundwater samples using direct push technology at six locations east of

Colfax Ave. on December 19, 2002. MWH collected samples from the seventh location east of Colfax Ave., southeast of the barrier wall, on Friday, December 20, 2002. MWH collected samples at the interval of 23 feet to 26 feet below ground surface at each well. At the seventh location, MWH reported that it also collected a second sample at the base of the aquifer near the clay layer.

MWH reported that it received the geotechnical analysis results for Hard Hat Services, Inc.'s (HHSI) clay sample from the ONCA SBPA interim cover construction. MWH reported that the permeability of HHSI's sample is less than the samples from the Off-Site Containment Area (OFCA) interim clay cover, even though the clay for both interim covers was from the same borrow source. HHSI's sample does not meet the design requirements of the cover; however, MWH reported that when HHSI's sample's permeability is averaged with the OFCA sample results, the clay would meet the performance requirements for permeability of the design in the areas where the design thickness was not met.

MWH reported that the OFCA ISVE system operated until the morning of December 19, 2002, when the scrubber registered an error. Upon investigation of the unit, MWH determined that the scrubber recirculation pump had stopped operating because of a problem with the control system. Austgen modified the permissives for the recirculation pump so that the pump operates continuously unless a low-low signal is received from the scrubber sump. MWH resumed operating the OFCA ISVE system on the afternoon of December 19, 2002, pulling vapors from 17 wells.

MWH reported that it collected a compliance sample from the groundwater treatment plant (GWTP) catalytic oxidizer on December 18, 2002, to ensure that the catalyst is operating properly after last week's repairs. MWH began operating the GWTP in recirculation mode on Thursday, December 19, 2002, after it changed the granular activated carbon. MWH reported that it expected to resume discharging from the GWTP on December 23, 2002.

MWH held the weekly construction coordination meeting on December 19, 2002.

Topics of Concern:

- Based on HHSI's clay sample for the ONCA SBPA interim cover, the permeability of the clay does not meet the design requirements.

Concern Resolution:

- Averaging the permeability of the OFCA clay samples with the ONCA SBPA clay sample may not be appropriate. There may have been changes in the borrow materials or the test may have been performed by different laboratories.

Upcoming Activities:

- Area Survey to resurvey P-36 and MW-10C.
- IES to continue installing the ONCA SBPA ISVE system yard piping.

Signature: Leigh Peters Date: December 23, 2002

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WEEKLY CONSTRUCTION MEETING AGENDA
FOR DECEMBER 19, 2002 MEETING
AMERICAN CHEMICAL SERVICE, NPL SITE
GRIFFITH, INDIANA

MEETING DATE: Thursday, December 19, 2002

MEETING TIME: 10:00 am

MEETING LOCATION: ACS Site – Site Trailer

TOPICS:

Health and Safety Summary (Lee)

GWTP Status (Lee)
- Current flow rate
- Carbon changeout

Off-Site ISVE System (Chris/Todd)
- System operation

SBPA ISVE Yard Piping (Todd/Dan)
- Update
- Placing geotextile
- Placing pipe
- Blower shed construction – concrete pour
- Them ox/scrubber procurement
- Look ahead

Design Refinements (Travis/Rob)

Looking Ahead

Week of...	Task
December 23	• GWTP/ISVE system operation • SPBA ISVE yard piping
December 30	• GWTP/ISVE system operation • SPBA ISVE yard piping
Health and Safety Look Ahead	• SPBA ISVE yard piping

Next Weekly Construction Meeting
- December 26, 2002 or TBA

SIGN IN SHEET
WEEKLY CONSTRUCTION METING
December 19, 2002

Name	Company	Fax Number
TRAVIS KLINGFORTH	MWH	630.836.8959
Dan Petrich	IES	708 388 6653
TOM TINCS	MWH.	
ROB ADAMS	MWH	630-836-8959
Leigh Peters	BVSPC	312-346-4781
CHRIS DAVY	MWH	630-836-8959
VIA PHONE		
PETE VAGT	MWH	
KEVIN ADLER	US EPA	
MARK TRAVERS	ENVIRON	
TODD LEWIS	MWH	

WEEKLY CONSTRUCTION MEETING MINUTES FOR DECEMBER 19, 2002 MEETING AMERICAN CHEMICAL SERVICE, NPL SITE GRIFFITH, INDIANA

MEETING DATE: December 19, 2002

MEETING TIME: 10:00 AM

MEETING LOCATION: ACS Site – Site Trailer

ATTENDEES:
Todd Lewis - MWH
Peter Vagt – MWH (via phone)
Rob Adams – MWH
Chris Daly – MWH
Lee Orosz – MWH
Tom Tinics – MWH
Travis Klingforth – MWH
Kevin Adler – U.S. EPA (via phone)
Leigh Peters – BVSPC (via phone)
Mark Travers – Environ (via phone)
Dan Petrich – Independent Environmental Services (IES)

TOPICS:

Health and Safety Summary

No health and safety incidents occurred at the Site since the last weekly meeting on December 12.

There are two vehicles currently on site without backup alarms. One is owned by MWH and the other by IES. MWH and IES are working on addressing this issue. The IES attempted to install a backup alarm on their backhoe, but the alarm did not function properly.

Groundwater Treatment Plant (GWTP) Status

The GWTP was operating normally during the past week. The GWTP is currently down (on December 19) for a routine periodic change-out of the carbon in the carbon filters. The system will be started again in recirculation mode on December 20 and will begin discharging treated effluent on December 23.

The catalytic oxidizer system pressure differential alarm system signaled on December 11. The catalyst was investigated on December 12 and cleaned out using high-pressure air. The catalytic oxidizer appears to be running properly again. An off-gas sample was collected during the week of December 16 to monitor the catalyst performance following the maintenance activity.

In-Situ Vapor Extraction (ISVE) System – Off-Site Area

The Off-Site Area ISVE system, including the thermal oxidizer unit, continues to operate properly. Seventeen SVE wells are currently on-line. The thermal oxidizer will be off line for a short time during the activated carbon change-out. This is due to interlocks between the GWTP and the ISVE system.

On-Site Area ISVE System

The vapor and compressed air conveyance pipe installation for the ISVE system is being installed by Independent Environmental Services (IES) at the direction of MWH. IES completed backfilling and compacting subbase material around the 21 dual phase extraction wells on December 16. During the week of December 16, IES removed the small amount of the clay cap around each of the SVE wells needed to install saddles.

IES has now substantially completed the excavation work required to complete the conveyance piping installation. The east side of the site has been approximately 85% covered with geotextile fabric. IES is beginning to fuse three-inch diameter conveyance piping and lay out the pipe to the various SVE wells where they will later be connected. IES will later perform the same tasks on the west side of the site.

IES performed air monitoring in and around the wells during the excavation and connection process. IES personnel working in the shallow excavations wear modified level C PPE, including half-face respirators. IES also performed daily monitoring on the roll-off boxes containing soil cuttings from the well drilling that are staged along the southern fence of the On-Site Area until the soil cuttings were placed under the interim clay cover (see description below).

On December 17, Midwest Environmental, Inc. (MEI) placed drill cuttings from the ISVE well installation and the excess material excavated during ISVE well installation and conveyance piping installation under the On-Site Area interim clay cover on December 17. MEI first removed the clay cover over an area approximately 40 feet by 90 feet in the western portion of the On-Site Area cover. MEI then spread and compacted the approximately 45 cubic yards of excess soil cutting material across the area to a height of approximately four inches. Impacted plastic liners and personal protective equipment (PPE) were removed from excess material to facilitate soil placement and compaction. This plastic and PPE was placed in the GWTP hazardous waste roll-off box used for filter cake and other impacted PPE. Finally, MEI replaced and compacted the clay in two six-inch lifts. The second lift included additional clay cap material that had been excavated from around the SVE wells in the western portion of the site. Great Lakes Soil and Environmental tested the clay for compaction and moisture and found the replaced cover to be acceptable. The impacted PPE and site protection material (plastic) will be disposed of with the filter cake at Peoria Disposal Company.

Ryan Construction installed reinforced steel and poured approximately 50 cubic yards of concrete on December 16 to construct the blower shed pad. The concrete forms were

removed on December 19. The transition pipe from the blower shed to the field wells was installed through the pad (cast in place).

Groundwater Monitoring

MWH began performing groundwater sampling via geoprobe on December 19 as part of Phase 3 of the ORC© pilot study. The samples will be collected near the intersection of Reder Road and Colfax Avenue, just southeast of the ACS Site. The sampling is scheduled to be complete on December 20. Another part of the Phase 3 investigation will be collecting soil samples of aquifer matrix material in this same area via geoprobe. That work will be schedule for February or March, when the potential for the worst winter weather is over.

Design Refinements

This section serves to update the calculations included in the December 6, 2002 Weekly Construction Meeting Minutes because MWH received another hydraulic conductivity test result for the project clay source. This test result was included in the interim cover completion documentation submitted by Hard Hat Services. This result indicated a hydraulic conductivity of 1.7×10^{-7} cm/sec. When this result is averaged with the hydraulic conductivity test results collected from the same source for the Off-Site Area interim cover (also presented in the December 6, 2002 Weekly Construction Meeting Minutes), the average hydraulic conductivity is 5.5×10^{-8} cm/sec. Using this hydraulic conductivity and a cover thickness of 0.9 feet, it will take water 17.5 years to migrate through the cover. This is still in excess of the design duration of 9.7 years and does not change MWH's belief that no additional work needs to be performed in these areas.

Looking Ahead

Week of December 23, 2002	• GWTP/ISVE operation • IES continues to install vapor conveyance piping
Week of December 30, 2002	• GWTP/ISVE operation • Continue to install vapor conveyance piping
Health and Safety Items to Monitor	On-Site ISVE Vapor Piping Installation • Inerting wells • Air monitoring for intrusive work • Welding pipe • Slips, trips, falls (especially in ice/snow and around SVE wells) • Temperature/hypothermia • Safe winter driving • Use of caution tape/barricades around excavations (especially abandoned well locations) • Backup signals for heavy equipment • Ladder safety • Securing Nitrogen tank during use

Next Weekly Construction Meetings

- Thursday, January 2, 2003
- Also, a meeting among MWH, the U.S. EPA, and Black & Veatch is tentatively scheduled for early January 2003 at the Site construction office to further discuss the Construction Completion Report Comments from the Agency.
- The ACS Site will be closed for Christmas Eve and Christmas Day (December 24 and 25). The Site will also be closed for New Year's Eve and New Year's Day (December 31 and January 1).

TMK/PJV/TAL/RAA
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Weekly Oversight Summary Report No. 95
ACS Superfund Site WA57, 46526.238

Reporting Period: Week of December 23, 2002
BVSPC O/S Dates: December 23, 2002 (Ms. Peters)

Personnel Summary Affiliation	No. of Personnel	Responsibility
Montgomery Watson Harza	2	Respondent's General Contractor
Black & Veatch Special Projects Corp.	1	USEPA Oversight Contractor
Independent Environmental Services	4	ONCA SBPA ISVE Yard Piping Contractor

Construction Activities

Major Activities:

- Independent Environmental Services placed geotextile fabric on the majority of the On-Site Containment Area Still Bottoms Pond Area interim cover.
- Montgomery Watson Harza resumed discharging treated effluent to the wetlands after the carbon changeout in the groundwater treatment plant.
- Montgomery Watson Harza cancelled the weekly construction coordination meeting because of the Christmas holiday.

Activities Performed:

Independent Environmental Services (IES) placed geotextile fabric on approximately 70% of the On-Site Containment Area (ONCA) Still Bottoms Pond Area (SBPA) interim cover. IES was unable to continue with yard piping installation and geotextile placement because of inclement weather at the site.

Montgomery Watson Harza (MWH) resumed discharging the treated effluent from the groundwater treatment plant (GWTP) to the wetlands on Monday, December 23, 2002. MWH completed replacing the granular activated carbon last Thursday, December 19, 2002, and had operated the GWTP in recirculation mode.

MWH reported that the Off-Site Containment Area (OFCA) ISVE system operated until December 21, 2002, when the scrubber shut down. MWH determined that the filters on the scrubber's recirculation piping were clogged with fines. MWH cleaned out the filters and resumed operating the unit on Monday, December 23, 2002.

MWH cancelled the weekly construction coordination meeting because of the Christmas holiday.

Topics of Concern:

- Based on Hard Hat Services, Inc.'s clay sample for the ONCA SBPA interim cover, the permeability of the clay does not meet the design requirements.

Concern Resolution:

- Averaging the permeability of the OFCA clay samples with the ONCA SBPA clay sample may not be appropriate. There may have been changes in the borrow materials or the test may have been performed by different laboratories.

Upcoming Activities:

- Area Survey to resurvey P-36 and MW-10C.
- IES to continue installing the ONCA SBPA ISVE system yard piping and geotextile placement.

Signature: Leigh Peters Date: December 31 2002

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JM Campbell

0945 Roll 32 Photo 22 looking SW at inflatable plug inserted into SVE well below location of drilling to keep explosive vapors below drilling location

0945 Roll 32 Photo 23 looking E showing preparation to lower interior portion of water pitless adapter into well 87.

0952 Roll 32 Photo 23 looking SE showing installation of washer and nut to secure water pitless

1100 Roll 32 Photo 24 looking E showing drilling of vapor hole 3" dia in SVE 57

1100 Photo 25 Roll 32 looking SE at S end of GWTP where new concrete slab is to be poured for new thermox unit

1155 Photo 26 Roll 32 looking NW at vapor pipe stubup in ONCA Blower shed area

1200 Travis indicated there was a problem with 3" vapor gate valves - being checked out

1215 Left site Not much work going on

JM Campbell

12/3/02 High E Peters

0715 Arrive on-site, 20°F, P. cloudy, light N breeze

Personnel Present:

Lee Orosz	MWH
Terrence Jones	IES
Dan Petrich	IES
Mike Petrich	IES
Lane DeBartolo	IES
Travis Kingforth	MWH
Leigh Peters	BVSPC

0720 Spoke with T. Kingforth - IES completing 3 DPE wells per day - should be complete mid next week. PID readings peak at 180 ppm but sustained levels vary from 1-3 ppm. Received IES's HASP today.

0750 Went to ONCA, observed IES begin excavating at SVE-63.

0755 Roll 33 Photo 1 facing SE of IES at excavation for SVE-63 removing clay at well. Note N2 tank secured to cart.

0800 T. Kingforth reported N2 tank secured to cart yesterday. He reported that tank had previously been secured to generator.

0810 IES measured VOC's SVE-63 with PID - peaked at 496 ppm

0820 Roll 33 Photo 2 facing SW at IES mounting

High E Peters

(100)

12/3/02

SVE-63, note grounding

0835 Observed IES drill 3" ϕ hole in SVE-63 IES using biodegradable lubricant. IES proceeded to install pitless adapter and saddle at SVE-63.

0930 Roll 33 Photo 3 facing S at ground of pitless adapter connection to whip at SVE-63

0950 Roll 33 Photo 4 facing W of forms and gravel for blower shed foundation

0955 Observed IES begin set up on SVE-84 to tie into whip and drill for saddle.

1040 Roll 33 Photo 5 facing S of IES placing pitless in SVE 84 - note hole for vapore piping.

1110 IES completed connections at SVE 84.

1115-1130 Spoke with L. Campbell regarding site activities. Discussed concerns over the excavations remaining open with respect to frost and replacing any frozen material.

1130-1215 Left site for lunch

1215-1300 Reviewed reports and worked on monthly report

1305 Roll 33 Photo 6 facing NE showing new concrete pad and fencing at GWTP

(101)

12/3/02

for ONCA ISVE thermax. Note placard on OFCA Thermax

1310 Went to ONCA SBPA to observe IES begin working at SVE-86. Spoke with T. Klingforth regarding excavations - he reported that they will be backfilled when tops to DPE wells complete next week, weather depending. He said that MWH was aware of concerns regarding frost and frozen material. He also reported that MWH will test compaction and moisture of clay once fore each 10 wells. MWH to test similar as when vapor installed.

1335 Observed IES personnel remove half face respirator while in excavation at SVE 86 to communicate. Will discuss with T. Klingforth. PID at 5 ft from excavation reading 0.5 ppm

1400 IES finished SVE-86 Cast well for day.

1410 Spoke to T. Klingforth regarding IES and not wearing respirator in excavation. He said that he will address in daily tool box mtg. Tomorrow's activities are IES tapping to more DPE wells and throughout track

1415 Observed IES bring more barricades and place at excavation.

1425 Left site - no more activity.

(102)

12/5/02 — Leigh E Peters

0720 Arrive on-site, Cloudy 20°F, light SW wind, light flurry.

Personnel Present:

Chris Daly	MWH
Lee Orosz	MWH
Mike Petrich	IES
Jerry Clark	Ryan
Tom Evers	Ryan
Terrance Jones	IES
Darryl Henry	IES
Tim Kirkland	Austgen
Lane DeBartolo	IES
Rudolf Stein	MWH
Leigh Peters	BVSPC
Chad Smith	MWH

Activities

1. ORC sampling + water levels
2. ONCA SBP4 ISVE yard piping
3. Austgen to make HDPE piping
4. Ryan to improve piping from aeration to catox

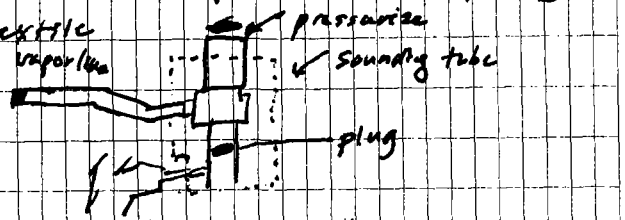
0735 Spoke with L. Orosz, he reported that IES to connect to all DPE wells; then MWH Sonotube ~~Sounding~~ tube to be placed around well and fill space with bentonite and backfill native in 12-inch lifts.

Leigh E Peters

(103)

12/5/02 — Leigh E Peters

Sonotube
~~Sounding~~ tube of cardboard to remain.
Clay to place and compact in 6-inch-lifts.
MWH reported HDPE vapor line to connect to well, well to be plugged and pressure test at 3 locations. Then entire site to be rolled at completion before placing geotextile



0740 Spoke with Orosz on HASP docs for personnel. Doc on file for D. Petrich respirator fit test. M. Petrich 40-hr, L. Orosz reported 30-day grace period for 8-hr, MWH requested OSHA certs from L. DeBartolo - copy for file. MWH misplaced original. MWH missing 40-hr for T. Jones. L. Orosz will continue to look for documents. L DeBartolo provided 8-hr card.

0805 Went to ONCA to observe IES. IES setting up on SVE-68 and excavating.

0850 L. Orosz came on ONCA - he reported that IES to bring pits docs tomorrow morning and will fax to me at BVSPC tomorrow morning.

Leigh E Peters

(104)

12/5/02

0900 IES began investing SVE-58. Observed IES drill rigs for piping connections.

1000 Spoke w/ C. Smith - he reported that MWH had some water levels to measure but he hopes to start sampling at the south area, ORC around 1100.

1010 Returned to ONCA to observe IES. They are still connecting to SVE-58.

1020 Roll 33 Photo 7 facing SE showing Ryan removing insulation from piping

1030 Returned to ONCA. IES excavated at SVE-50, began excavating SVE 49

1115 Reviewed ORC work plan for sampling. C. Smith left site briefly to return and begin sampling. GW samples to be analyzed for:
VOCs, DRO, GRO, DOC, COD, NO_3, NO_2 Ammonia, Kjeldahl N, Total Fe & Mn, Dissolved Fe & Mn, SO_4 and Alky, C_2H_6, C_2H_4

1130 Observed MWH begin sampling at MW06, depth to water - 25.50 ft. MWH collecting field parameters every 3 minutes. MWH also collecting MS/MSD and duplicate for VOCs.

1200 Roll 33 Photo 8 of MWH collecting field parameters at MW06

(105)

12/5/02

1200 MWH collecting sample pH = 6.64 Cond = 4.21 mS/cm Turbidity = 10.9 DO = 0.92 Temp = 15.77 ORP = 92

1210 Roll 33 Photo 9 facing S of MWH collecting VOC sample at MW06

1230 MWH completed sampling at MW06.

1245-1255 Spoke with L. Campbell on site activities

1315 Observed MWH begin to set up for sampling at ORCP2103 - water level - 23.45 ft below TOC, flow rate 400 mL/min

1320 Roll 33 Photo 10 facing NE of MWH setting up bladder pump at ORCP2103

1400 Spoke with C. Campbell - he reported MWH notified that areas on ONCA cover have less than 12-inches of clay. I will talk to personnel on-site to get more info.

1405 Observed MWH sample at ORCP2103 for

~~1425 Spoke with~~

1415 Roll 33 Photo 11 facing W of MWH collecting filtered sample at ORCP2103 for dissolved Fe, Mn

1435 Spoke with C. Daly re: ONCA cover. He was not aware of what specific areas are short on clay.

1450 Observed MWH purge ORCP2102 and begin sampling

1508 MWH completed sampling

1520 Left site for day

(106)

12/10/02

0715 Arrive on-site, Mostly Sunny 30°F, SE breeze

Personnel on-site:

Lee Oross	MNH
Mike Petrich	IES
Lane DeBartolo	IES
Dan Petrich	IES
Terrence Jones	IES
Travis Klingforth	MNH
Tim Kirkland	Austgen
Leigh Peters	BVSPC

0720 Spoke with T. Klingforth he reported IES to cap pitless adaptors in ~~3~~ 4 DPE wells to test connections to groundwater conveyance line. IES has 2 DPE wells Remaining. IES still wearing respirators in excavation and when well is open to seal pitless. I reiterated to T. Klingforth importance of air monitoring while wells are open and also monitoring excavations. If weather is warmer, IES to begin backfill activities this week.

0735 Roll 33 photo 12 facing SW of DPE wells pitless adaptor

0745 IES began excavating at SVE-47 located near the ACS employee break room where drainage debris was encountered during

(107)

12/10/02

trenching activities. PID peaking at 3 ppm in breathing zone near edge of excavation.

0820 Roll 33 Photo 13 facing SW of IES excavating while at SVE-47.

0835 IES monitored air in ACS break building - PID readings peak around 1.5 ppm. All windows and doors closed, no personnel inside. IES getting ready to pressure test trench D - hold 50 psi for 30 minutes is what MNH is requiring.

0900 - After 15 minutes of pressure testing, lost 3 psi, IES thinks that seals at pitless may leak slightly but feel confident not HDPE fusion.

0905 MNH reported PID readings inside bldg 0.8 to 1 ppm and 1 ppm to 1.8 ppm outside building near SVE-47. Observed IES insert SVE-47 and excavate around SVE-48. Observed IES tap into SVE-47.

0940 T. Klingforth reported that the pressure in trench D is at 40 psi after 45 minutes MNH hypothesized that leak at "O" rings. T. Klingforth requested BVSPC approve replacement of backfill - I called L. Campbell - BVSPC to observe replacement if MNH demonstrates not frozen, but cannot approve as a QC check. I informed

(108)

12/10/02

Travis that I would observe backfilling and that they can demonstrate not frozen material is being replaced today.

0955 IES having difficulty finding whip at SVE-48. IES found 3-inch gw line, continue to look for whip.

1030 IES complete SVE-47, still unable to find whip at SVE-48. Excavating to the east.

1045-1105 Reviewed MWH documents

1115 IES uncovered whip to SVE-48. IES is waiting on saddles (2) to complete SVE-47 and SVE-48. Saddles for vapor conveyance piping. IES continues to cap pitless adapters in trench C wells.

1130-1230 Left site for lunch

1230-1300 Review OFCA Interim Cover CLR RTC

1300 Spoke with L Orosz, he reported ACS damaged water line, MWH loss water pressure. Thermox down - Ryan to change piping tomorrow for 2 strainers on scrubber - thermox to be on line Thursday.

1310 Went to ONG observed IES working at SVE-48

1325 IES & MWH began preparation to backfill excavations - starting SVE-61. MWH is documenting position of whip at each well with picture.

(109)

12/10/02

1335 Roll 33 Photo 14 - facing W Photo 15 facing N at sonotube at SVE-61.

1340 - IES backfilling holes, material is sandy without clumps - material appears to not be frozen, either in excavation or stockpile

1347 Roll 33 Photo 16 facing S of IES backfilling around sonotube at SVE-63.

1350 MWH reported pressure leak from earlier test was at the gauge - IES observed leak IES to possibly retest and will test trench C. L Orosz reported IES will not place any material that may be frozen or with snow.

1400 Spoke with L Campbell on site activities.

1420 MWH tightened pressure gauge. IES retesting trench D at 50 psi for 30 min - pressure holding.

1432 Roll 33 Photo 17 facing NE of IES placing bentonite grout in sonotube at SVE-60.

1450 Roll 33 Photo 18 facing SW of IES placing backfill at SVE-61

1500 Roll 33 Photo 19 facing N showing IES compacting subgrade at SVE-61 with jumping jack compactor. Subgrade compacted in 12-in lifts, no testing

1530 IES packing up for day - to set up barricades left site for day

(110)

12/12/02

0720 Arrive on-site, 30°F, cloudy, forecast for 44°F., moderate south wind.

Personnel On-site

*Lee Crosz MWH
Mike Petrich IES
Dan Petrich IES
Lane DeBartolo IES
Terrence Jones IES
*Travis Klingforth MWH
Darryl Henry IES
Tim Kirkland Avstgen
*Leigh Peters BVSPC

0730 T. Klingforth reported IES installed saddles on SVE-47 + SVE-48 yesterday. IES also cut sonotubes and backfilled SVE-63 and SVE-65. IES also pressure tested trench D at 100 psi for 1hr and 3 inch-groundwater conveyance piping at 98 psi at 15min. T. Klingforth also reported Ryan Construction on-site yesterday working on Catox and thermox.

Activities Today:

1. IES to continue ~~bat~~ backfill + grout.
2. Ryan to place rebar for ONCA blower shed foundation slab

(111)

12/12/02

0750 Went to ONCA - IES setting up for day. Ryan Construction to install rebar this morning. Observed IES begin backfilling wells SVE-50 - clearing & install sono tubes. T. Klingforth reported no problems encountered in subgrade.

820-830 Spoke with L. Campbell on MWH CCRs

0900 Observed IES backfilling at SVE-~~65~~ IES removing any large clumps of backfill and placing most of sand.

0920 Roll 33 Photo 20 facing S at IES backfilling SVE-80.

0930 Roll 33 Photo 21 at IES bentonite from mixer. Observed Ryan Construction re-setting forms for ONCA blower shed slab existing forms were not square.

0945 Left ONCA for weekly meeting

1000 Weekly Construction Coordination Meeting

Attendees - * on previous plus
Rob Adams, P. Vagt - MWH
via phone: Kevin Adler EPA
John Pohl MWH
Mark Travers Environ

11+5 MWH has documentation of the 40/8-ha Avstgen employee observed odor last Tuesday night - MWH showed R. Flores all monitoring

(112)

12/12/02

and equipment - odor thought to be related to Compost. No H2S incidents maintenance activities at GWTP. BVSIC observed equipment w/o backup alarms - MWH equipment removed - IES to install alarms. IES air monitoring around rolloffs

GWTP: Shut down Saturday - went down again monday - ACS hit water line. on-line Tuesday but error with catox pressure differential - System in circulation mode. Ryan and MWH troubleshot catox, to reinstall today. If not solution then system may be down for 24 hours. Carbon changeout on 12/19

OFC/AISVE: down with GWTP. Ryan installed bypass and filter yesterday. Running with 17 wells on-line using Griffith water. MWH performed maintenance activities on unit while system is down.

ONC/AISVE: All DPE wells connected to gw line. Lines C + D pressure tested successfully. MWH consolidating clay + will cover in blankets. Also consolidating contaminated material where it will be buried by MEI

Design: Discuss comments next thurs in CCRS

1035 Next mtg - 12/26, mtg concluded.

(113)

12/12/02

1045 - Went to GWTP Roll 33 Photo 22 facing N of catalyst from catox unit

1050 Roll 33 Photo 23 facing W of bypass and filters install on OFC/A ISVE scrubber

1100 - 1110 Spoke with Larry Campbell on site activities.

1115 - Went to ONC/A, Spoke with T. Kingsforth regarding exclusion zones. MWH qualifying perimeter fence as exclusion zone and communication between workers. Also, MWH reported that IES would continually need to adjust any exclusion zone because of activities. R. Adams reported that he expected 3 rolloff boxes of material and that max elevation increase of 6 inches when material buried. Observed Ryan Construction working on forms, pour rescheduled to monday. IES continues to backfill.

1130 Roll 33 Photo 24 facing S of IES dry decanting equipment on trailer between well locations.

1145 - 1230 left site for lunch.

1240 - Went to ONC/A, Ryan placing vapor barrier over gravel substrate. IES returned to site for well backfill.

1310 Roll 33 Photo 25 facing W of Ryan installing rebar for blower shed slab. Note plastic vapor barrier

(114)

12/12/02

1315 Earlier, I observed that the southern rope fence was not in-tact on on-site area. I reported to Travis that if MWH is considering perimeter fence as exclusion zone boundary that the fence needs to be repaired.

1230-1400 finalized comments on OFCA Cover Ltr

1405 Returned to ONCA. L Orosz reported catox and GWTP on-line. T. Klingforth reported that IES is parking equipment around SVE-47 + 48 at night since no more barricades. Observed T. Klingforth repairing Southern portion of fence.

1415 L Orosz reported IES backed into SVE 71. Observed marks on well riser, but L Orosz reported no damage to well.

1420 Roll 33 Photo 26 facing SW of Ryan placing rebar for blowershed foundation

1425 Roll 33 Photo 27 facing SW of SVE-71.

1430 Observed that MWH placed caution tape N of SVE-47 + SVE-48.

1435 Left Site to return to Office

12/17/02

(115)

12/17/02

0725 Arrive on-site, overcast, 30°F, strong wind from East. Spoke w/ L. Orosz - he reported MEI to remove cover and place drill cuttings today - Anticipate Level C work - IES to air monitor. MEI NOT prepared for level B. If air monitoring exceeds level C, then MEI to stop work - postpone or anticipate volatiles to leave material. IES to spread geotextile - Austgen to roll east side, Ryan continue to cut through gravel road.

0740 Spoke with T. Klingforth - MEI to start in full face respirators - Level B upgrade if PID readings sustained over 50. MEI not establishing exclusion zone - All contractors notified of activities and exclusion areas

0745 Personnel Present:

Travis Klingforth	MWH	Lee Orosz
Ken Field	MEI	Steve Field
Dave Rodrick	MEI	
Dan Petrich	IES	Lane DeBartolo
Mike Petrich	IES	Darryl Henry
Tom Evers	Ryan	Jerry Clark
Tim Kirkham	Austgen	

(116)

12/17/02 Leigh Peters

Chad Smith MWH

Leigh Peters BVSPC

0755 Went to OFCA to observe activities. MEI removing clay from W portion of cover MWH reported that appx 40 cy to be placed.

0803 Roll 34 Photo 1 facing S of IES excavating at SVE-52. Backup alarm to be fixed on equipment today.

0810 MWH reported Jerry Clark, Tom Evers are not yet to be trained. They are removing gravel from road for pipe runs. Non-intrusive work.

0815 Roll 34 Photo 2 facing NE of Ryan jackhammering through gravel road, completed trench in foreground.

0845 Continued to observe OFCA activities. IES to ~~place~~ ~~off~~ place poly from stockpile of subgrade excess in MWH's filler cover roll off.

0915 Roll 34 Photo 3 facing N of IES removing poly from subgrade stockpile.

Spoke with L. Orosz - he reported BWTP at 25 gpm - MW10C not pumping often, OFCA ISVE system operating.

0920 Roll 34 Photo 4 facing W of MEI removing clay cap.

0940 Roll 34 Photo 5 facing N of Orange tipping

(117)

12/17/02

roll off box containing drill cuttings.

0955 MWH reported PID readings of 1-2 ppm at downwind perimeter of drill cutting burial area. MEI reported that a small portion of rolloff material at end gate was frozen. I asked MWH if the frozen material would be a problem. L. Orosz reported that it should not be after dozer rolls over it, but L. Orosz said MWH would keep an eye on it.

1020 Austgen on-site to roll east portion of cover.

1030 Roll 34 Photo 6 facing W of MEI spreading drill cutting materials.

10:40 Light rain. Observed IES and Austgen roll eastern portion of cap and place geotextile.

1045 Roll 34 Photo 7 facing E of IES and Austgen rolling & placing geotextile.

1050 Roll 34 Photo 8 facing W of MEI placing subgrade pile in open excavation area.

1145 Roll 34 Photo 9 facing W of MEI rolling subgrade. MEI dry decanning between steps of backfilling subgrade and clay.

1155 L. Orosz showed me where the abandoned borehole near SVE-54 was filled with clay yesterday. Observed MEI replacing final lift of clay.

1215 Roll 34 Photo 10 facing W of MEI placing clay over subgrade.

(118)

12/17/02

1225-1325 Left site for lunch

1330 Returned to ONCA - Observed MEI rolling first lift of clay with smooth drum roller. IES continues to lay geotextile. MWH reported Great Lakes to be on-site at 1500 MWH having MEI place second lift and will have Great Lakes test both lifts.

1340 MEI reported that it is testing in between lifts. I observed plastic in clay layer - MEI suggested cutting at surface. 95% compaction is 106.4 pcf, moisture -1% to +2% of OMC → 14% to 17% for clay. Observed MWH cutting plastic from clay.

1410 - 1440 Worked on weekly OSR Reports

1455 Great Lakes on-site - MWH requiring 2 compaction tests per lift. 1st test passed - 15.1% moisture - 111 pcf compaction 2nd test 15.7% moisture and 109.9 pcf. Observed MEI place second lift.

1525 L. Orosz reported he collected GWTP compliance sample today, ISVE sample last week. GWTP to be shut down tomorrow for carbon change out

1540 Roll 34 Photo 11 facing E at geotextile on ONCA

1545 Observed MEI roll 2nd lift - Great Lakes to test

1615 Left Site for day

(119)

12/19/02

0725 Arrive on site Cloudy, west wind, 40°F

Personnel Present

X Les Orosz	MWH	Chad Smith
Mike Petrich	IES	X Dan Petrich
Terrance Jones	IES	Darryl Henry
Tom Evans	Ryan	Jerry Clark
Michael Gustafson	Autumn Industries	
X Chris Daly	MWH	
X Leigh Peters	BVSPC	

Activities today:

1. South Area ONC Pilot Study GW sampling
2. GWTP carbon change-out
3. MWH PSVP monitoring of OFC at ISVE
4. ONCA ISVE yard piping

0735 Spoke with D. Petrich - IES rained out yesterday site received 0.6-0.8 inches of rain (?) IES to start connecting to 4-inch SVE wells. IES to mark well with plug and nitrogen. May start final trench through gravel road.

0755 Spoke with T. Klingforth - Completed compaction testing - results 99-100% compaction, moisture cut 17.2% to 17.3%. He reported MEI completed rolling the cover Tuesday night

0805 Went to ONCA with T. Klingforth - Observed Ryan Construction laying HDPE piping

12/19/02

in trenches. IES pumping out water from around wells MWH marking location of final trenches through gravel road.

0830 Observed MWH and Mid American drilling begin DPT sampling at northernmost probe location. DPT-01 MWH recording field parameters every 3 minutes

0840 Roll 34 Photo 12 facing NW of MWH + Mid-America installing piping at DPT - to pump with peristaltic pump.

0845 DPT screen from 23-26 ft bgs. water level at MW17 at 18 ft bgs earlier this week.

0961 MWH begin to sample DPT-01 field parameters:

pH	Cond ms/cm	Turb	DO	Temp	ORP	vol.
6.95	2.26	539	7.29	12.78	+48	2.2 gal

MWH determining stabilization from pH, Conductivity, Temperature and ORP. samples collected for: VOCs, DRO, GRO, COD, NO_3, NO_2 Ammonia, Kjedahl N, Total Fe + Mn, Dissolved Fe, Mn, SO4 and Methane.

0908 Roll 34 Photo 13 facing W of MWH collecting GRO sample and checking head space.

0924 MWH completed sampling at DPT01

0935 Went to ONCA T. Klingforth reported IES fusing pipe and removing gravel from

Beth E Peters

12/19/02

road for trench. IES has not started tapping into the SVE wells.

1000 Weekly Construction Mtg

Attendees - * on previous plus:

T. Traica MWH - Rob Adams

T. Klingforth MWH

via phone: P. Vagt MWH

Todd Lewis MWH

K. Adler USEPA

Mark Travers Environ

H+S: No incidents, continued air monitoring of roll offs - no problems, Backup alarm on excavator not operational - equipment not needed this week.

GWTP: MWH blew out catalyst plant running; collected compliance sample yesterday. Carbon change out today. Recirc flow until Monday. Discharge Monday. OFCA ISVE thermox down this morning - electrical problem. ISVE pulling from same 17 wells.

ONCA: 98% done with excavation, 85% of geotextile on east side. IES butt fusing pipes until weather permits hooking up saddles. MEI placed cuttings under

Beth E Peters

12/19/02

Cap. Operators + personnel wore respirators, PID < 10ppm. Area of 90 x 40 ft, max depth of 4 inches. Great Lakes performed compaction testing. Plastic placed into haz waste box.

Design Refinements: MWH received HH51 conductivity averaged into clay for the thinner cap locations. 16 y for permeability - to include in minutes.

ORC Sampling: today DPT

Look Ahead: OFCA ISVE, GWTP, ONCA yard piping.

Schedule: 12/23, 12/26, 12/27, 12/30, 1/2, 1/3

Next Mtg: January 2, 2003

1044 Went to GWTP. C. Daly reported that the OFCA ISVE scrubber recirculation pump not working. MWH emptying sump - pH at 9-10. R. Flores from Austgen on-site to investigate controls. L. Orosz reported high conductivity was observed and then MWH observed recirc pump not operating.

1100 Observed MWH conduct sampling at DPT03

1110 Pump on at DPT03

1130 Begin sampling

pH	Cond	Turb	DO	Temp	ORP	Vol
7.05	2.05	66.2	5.05	13.64	-127	2.8

12/19/02

1145 Roll 34 Photo 14 facing NW at ground at MWH collecting final sample at DPT03 for dissolved iron and manganese.

1200-1245 left site for lunch

1245 Observe MWH collect samples at DPT05A located in southern portion of 1002 Reactor. MWH collecting MS/MSD and duplicate for VOCs

1312 Roll 34 Photo 15 facing SW at probing at DPT-05.

1324 MWH began pumping from DPT05 Stabilized parameters

pH	Cond	Turb	DO	Temp	ORP	Vol
7.03	2.40	50.8	4.45	13.45	-127	2.1

1347 MWH collecting sample from DPT05 Samples collected from 23-26 ft-bgs, 3/4" at 10-slot screen

1405 MWH completed collecting samples.

1410 Roll 34 Photo 16 facing N at screen portion of geoprobe.

1425 Went to ONCA Ryan removed concrete forms from blower shed slab. Yes welding pipe and moving gravel. T. Klingfuhr reported Yes to place remaining geotextile on cover tomorrow.

1435 Roll 34 Photo 18 facing NW at blower shed slab.

1445 Observed MWH still working on carbon changeout. T. Thiess reported OFCA ISVE system on-line, problem occurred with low flow and recirculation pump. Austgen changed

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12/19/02

permissive so that the recirc pump operators unless low-low ~~sump~~ condition.

1500 Observed MWH sample DPT06 at corner of Reder Rd and Colfax. Stabilized params:

pH	Cond	Turb	DO	Temp	ORP	Vol
7.37	2.72	43.9	3.50	13.43	-163	4.0

1522 Concluded GW sampling. MWH to sample at DPT07 - located inside OFCA tomorrow. C. Smith reported MWH to collect sample at middle range of aquifer and at base of aquifer. Observed driller backfill borehole with bentonite chips

1530 Left Site for day

12/19/02

(125)

12/23/02

0720 Arrive on-site, W wind, cloudy, 25-30°F

Personnel Present:

Lee Orosz	MWH
Mike Petrick	IES
Dan Petrick	IES
Terrance Jones	IES
Darryl Henry	IES
Leigh Peters	BrsPC

Spoke with L. Orosz, he reported that OFCA thermox/scrubber went down Sat night - he started to clean filter this morning. L. Orosz also reported carbon changed out Thursday night - started discharging to wetlands this morning

0735 Went to ~~OFCA~~ OWCA, observed IES placing geotextile on western portion of area. D. Petrick reported that IES to place geotextile the whole day - may take longer - not sure. I observed that the geotextile has been placed over the entire eastern portion of OWCA.

0750 Roll 34 photo 18 facing W of IES placing gravel on geotextile.

0800 Spoke with T. Thiles of MWH - he reported that C. Smith completed groundwater sampling on Friday, IES had welded additional pipe. MWH also reported that it was bringing the OFCA ISVE system back

(126)

12/28/02

on line and up to temperature MW-11 indicates system went down because of clogged filters.

0815-0845 Worked on weekly reports

0850 Went to ONCA. IES continuing to place geotextile and cutting out geotextile from around wells. D Petrich reported IES to start tapping wells Thursday or Friday - expect to connect 7 wells per day - 5 days of water tie-in work.

0915 Left Site for day - limited activity

12/28/02

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01/02/03

0720 Arrive On-site, 28-30°F, Cloudy, N wind
Personnel On-site:
X Lee Oross MWH
Lane DeBartolo IES Mike Petrich
* Leigh Peters BVSIC
Tim Kirkland Austgen

0730 Spoke with L. Oross - he reported that IES and Austgen to fuse pipe today and planning to get majority of piping done before tapping into 4-inch diameter wells. GWTP at 1 mgpm, OFCA ISVE system operating

0745 Went to ONCA. Geotextile placed over majority of west part of ONCA SVE; however not complete. Observed IES welding pipe - IES warming equipment. Mike Petrich reported 4-5 more days of welding to rough-in the majority of piping. M. Petrich also reported that IES may finish laying geotextile this week depending on weather

0830 Roll 34 Photo 19 facing SW showing IES welding pipe

0845 Observed MWH taking water level measurements at DPE wells.

0905 Roll 34 Photo 20 facing NE of MW11 measuring depth to pressure adapter.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #1
Date: 12-3-02 Time: 07:55
Photographer: Leigh Peters
Description: Photo facing southeast showing IES removing clay around DPE well SVE-63. Note that the nitrogen tank is secured to a cart.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #2
Date: 12-3-02 Time: 08:20
Photographer: Leigh Peters
Description: Photo facing southwest showing IES inerting DPE well SVE-63.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #3
Date: 12-3-02 Time: 09:30
Photographer: Leigh Peters
Description: Photo facing south at the ground showing the pitless adapter connection to the groundwater conveyance piping at SVE-63.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #4
Date: 12-3-02 Time: 09:55
Photographer: Leigh Peters
Description: Photo facing west showing the forms and gravel subgrade for the ONCA SBPA ISVE system blower shed slab.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #5
Date: 12-3-02 Time: 10:40
Photographer: Leigh Peters
Description: Photo facing south showing IES placing the pitless adaptor into SVE-84.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #6
Date: 12-3-02 Time: 13:05
Photographer: Leigh Peters
Description: Photo facing northeast showing the new concrete pad and fencing at the GWTP.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #7
Date: 12-5-02 Time: 10:20
Photographer: Leigh Peters
Description: Photo facing southeast showing Ryan Construction removing insulation from piping at the aeration tank.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #8
Date: 12-5-02 Time: 12:00
Photographer: Leigh Peters
Description: Photo facing southwest showing MWH measuring field parameters during purging activities at MW06.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #9
Date: 12-5-02 Time: 12:10
Photographer: Leigh Peters
Description: Photo facing south showing MWH collecting a sample for volatile organic compounds analysis.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #10
Date: 12-5-02 Time: 13:20
Photographer: Leigh Peters
Description: Photo facing northeast showing MWH setting up bladder pump at ORCPZ103.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #11
Date: 12-5-02 Time: 14:15
Photographer: Leigh Peters
Description: Photo facing west showing MWH collecting filtered sample at ORCPZ103 for dissolved iron and manganese analysis.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #12
Date: 12-10-02 Time: 07:35
Photographer: Leigh Peters
Description: Photo facing southeast showing the pitless adapter that will be installed in the DPE wells.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #13
Date: 12-10-02 Time: 08:20
Photographer: Leigh Peters
Description: Photo facing southwest showing IES excavating for the 1-inch-diameter tee from the groundwater conveyance piping at SVE-47.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #14
Date: 12-10-02 Time: 13:35
Photographer: Leigh Peters
Description: Photo facing north showing the Sonotube around SVE-61.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #15
Date: 12-10-02 Time: 13:25
Photographer: Leigh Peters
Description: Photo facing north showing the Sonotube around SVE-61.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #16
Date: 12-10-02 Time: 13:47
Photographer: Leigh Peters
Description: Photo facing south showing IES backfilling around the Sonotube at SVE-63.

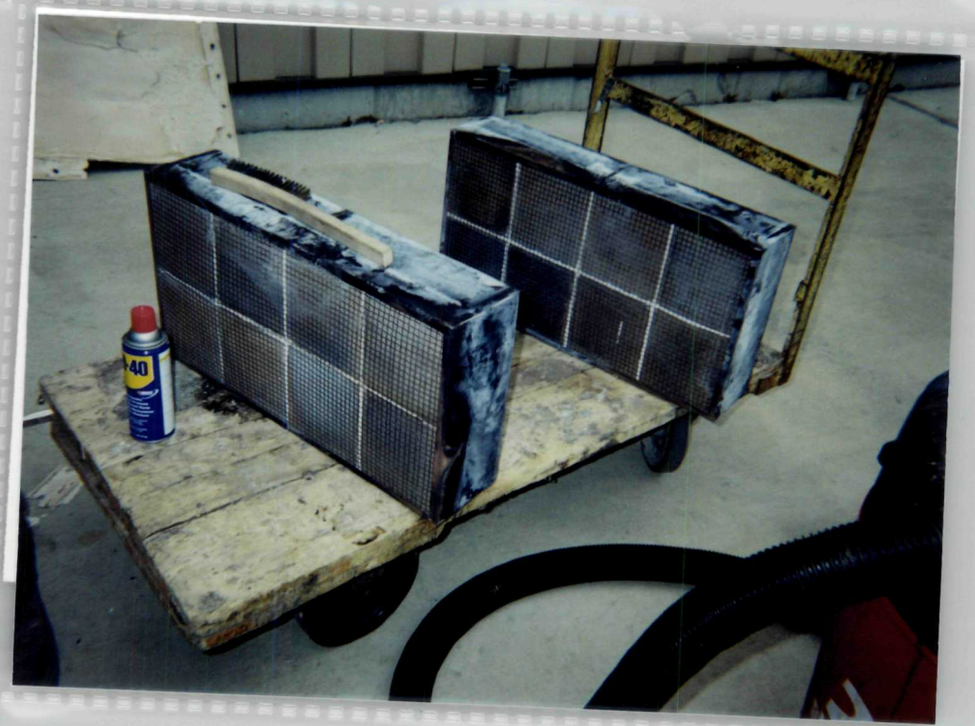
Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #17
Date: 12-10-02 Time: 14:32
Photographer: Leigh Peters
Description: Photo facing northeast showing IES placing bentonite grout in the Sonotube surrounding SVE-61.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #18
Date: 12-10-02 Time: 14:50
Photographer: Leigh Peters
Description: Photo facing southwest showing IES placing backfill at SVE-61.

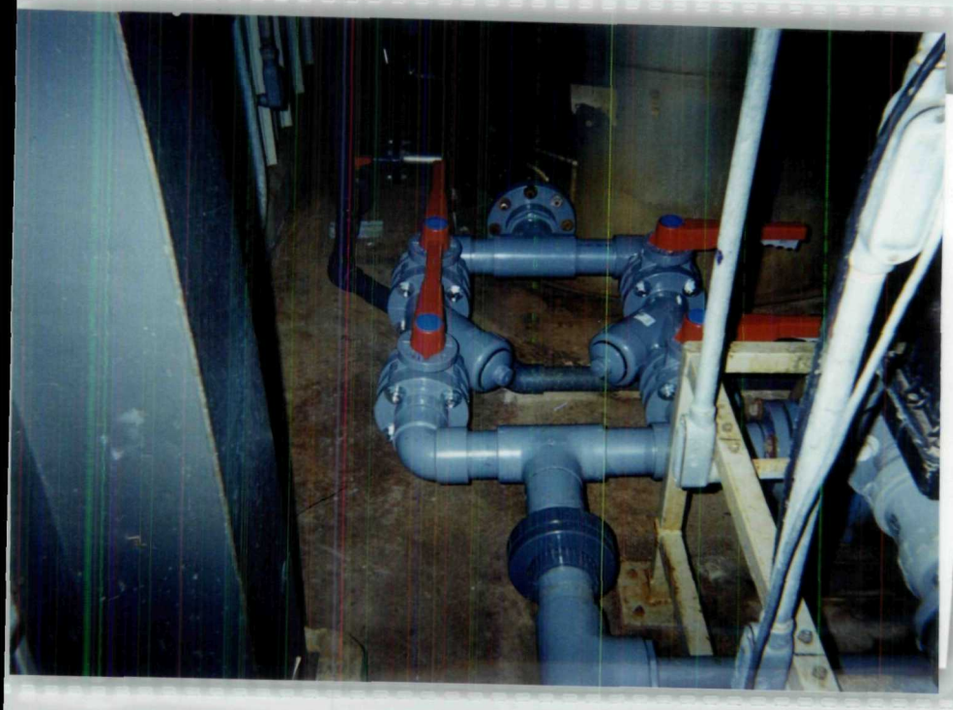
Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #19
Date: 12-10-02 Time: 15:00
Photographer: Leigh Peters
Description: Photo facing north showing IES compacting the subgrade backfill at SVE-61 with the jumping jack compactor.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #20
Date: 12-12-02 Time: 09:25
Photographer: Leigh Peters
Description: Photo facing southwest showing IES backfilling around SVE-80.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #21
Date: 12-12-02 Time: 09:30
Photographer: Leigh Peters
Description: Photo facing southwest showing IES mixing the bentonite grout using a cement mixer.



Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #22
Date: 12-12-02 Time: 10:45
Photographer: Leigh Peters
Description: Photo facing north showing the catalyst from the GWTP's catalytic oxidizer unit.



Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #23
Date: 12-12-02 Time: 10:50
Photographer: Leigh Peters
Description: Photo facing west showing the bypass piping and filters installed on the scrubber recirculation piping.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #24
Date: 12-12-02 Time: 11:30
Photographer: Leigh Peters
Description: Photo facing south showing IES dry decontaminating its equipment on visqueen between well locations.

Site: American Chemical Services, Inc.
Proj. # 46526
Roll: 33 Photo #25
Date: 12-12-02 Time: 13:10
Photographer: Leigh Peters
Description: Photo facing west showing Ryan Construction installing rebar for the ONCA SBPA ISVE system blower shed slab.

Site: American Chemical Services, Inc.
Proj. # 46526
Roll: 33 Photo #26
Date: 12-12-02 Time: 14:20
Photographer: Leigh Peters
Description: Photo facing southwest showing Ryan Construction placing the rebar for the ONCA SBPA ISVE system blower shed slab.

Site: American Chemical Services, Inc.
Proj. # 46526
Roll: 33 Photo #27
Date: 12-12-02 Time: 14:25
Photographer: Leigh Peters
Description: Photo facing southwest showing SVE-71 which was hit by IES's equipment.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #1
Date: 12-17-02 Time: 08:03
Photographer: Leigh Peters
Description: Photo facing south showing IES excavating at SVE-52.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #2
Date: 12-17-02 Time: 08:15
Photographer: Leigh Peters
Description: Photo facing northeast showing Ryan Construction jackhammering through the ONCA SBPA gravel road. Completed conveyance piping trench in foreground.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #3
Date: 12-17-02 Time: 09:15
Photographer: Leigh Peters
Description: Photo facing north showing IES removing plastic from the stockpile of subgrade material excavated during the SVE well connections.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #4
Date: 12-17-02 Time: 09:20
Photographer: Leigh Peters
Description: Photo facing est showing MEI removing the ONCA SBPA interim clay cover.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #5
Date: 12-17-02 Time: 09:40
Photographer: Leigh Peters
Description: Photo facing north showing Ozinga tipping the first roll-off box containing drill cuttings from the ONCA SBPA ISVE well drilling.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #6
Date: 12-17-02 Time: 10:30
Photographer: Leigh Peters
Description: Photo facing west showing MEI spreading the drill cuttings within the excavation.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #7
Date: 12-17-02 Time: 10:45
Photographer: Leigh Peters
Description: Photo facing east showing Austgen and IES unrolling and placing the geotextile on the eastern portion of the ONCA SBPA interim cover.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #8
Date: 12-17-02 Time: 10:50
Photographer: Leigh Peters
Description: Photo facing west showing MEI spreading the excess native material generated from IES' activities into the excavation area.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #9
Date: 12-17-02 Time: 11:45
Photographer: Leigh Peters
Description: Photo facing west showing MEI compacting the drill cuttings and excess native material generated from IES's activites.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #10
Date: 12-17-02 Time: 12:15
Photographer: Leigh Peters
Description: Photo facing west showing MEI placing clay over the compacted fill materal.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #11
Date: 12-17-02 Time: 15:40
Photographer: Leigh Peters
Description: Photo facing east showing the geotextile placed on the eastern portion of the ONCA SBPA interim cover.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 33 Photo #12
Date: 12-19-02 Time: 08:40
Photographer: Leigh Peters
Description: Photo facing northwest showing MWH and Mid-America Drillling installing the tubing at DPT01 to pump groundwater with a peristaltic pump.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #13
Date: 12-19-02 Time: 09:08
Photographer: Leigh Peters
Description: Photo facing west showing MWH collecting a sample for gasoline range organics and checking for headspace in the vial.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #14
Date: 12-19-02 Time: 11:45
Photographer: Leigh Peters
Description: Photo facing northwest at ground showing MWH collecting the final sample at DPT03 for dissolved iron and manganese.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #15
Date: 12-19-02 Time: 13:12
Photographer: Leigh Peters
Description: Photo facing southwest showing Mid-America Drilling probing at DPT05.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #16
Date: 12-19-02 Time: 14:10
Photographer: Leigh Peters
Description: Photo facing west showing the screened portion of the geoprobe rod.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #17
Date: 12-19-02 Time: 14:35
Photographer: Leigh Peters
Description: Photo facing northwest showing the completed ONCA SBPA ISVE system blower shed slab.

Site: American Chemical Services, Inc.
Proj. #: 46526
Roll: 34 Photo #18
Date: 12-23-02 Time: 07:50
Photographer: Leigh Peters
Description: Photo facing west showing IES placing gravel on the geotextile placed on the western portion of the ONCA SBPA interim cover.